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THE

AMERICAN ALPINE JOURNAL

1936

PUBLISHED BY
THE AMERICAN ALPINE CLUB
140 EAST 46TH STREET
NEW YORK CITY

THE

AMERICAN ALPINE CLUB

Founded 1902; Incorporated 1915

140 East 46th Street, New York City

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AMERICAN ALPINE JOURNAL

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VOLUME II 1936 NUMBER 4

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DOGS OF THE NATIONAL GEOGRAPHIC SOCIETY'S YUKON EXPEDITION

The airplane played an important part in the success of the Expedition but dogs were indispensable

THE
AMERICAN ALPINE JOURNAL

VOLUME II 1936 NUMBER 4

The Yukon Expedition

ROBERT H. BATES

Have you broken trail on snowshoes? Mushed your huskies up the river?
—SERVICE.

YUKON TERRITORY, Canada's most westerly province, is bounded by the watershed of the Mackenzie River on the east, the bulk of continental Alaska on the west, the Arctic Ocean on the north, and British Columbia and a bit of Alaska in the south. But although the province nowhere reaches the Pacific Ocean, its southern boundary for 300 or 400 miles is near the Alaskan Panhandle, that coastal strip running southeast along the British Columbia border; thus it is through Skagway alone that a convenient southern entry to the Yukon can be made. About 70 miles north of Skagway (northernmost port of the Inside Passage) and 150 to 200 miles to the west, in the extreme southwest portion of the territory, lies the heart of the "Yukon Corner," explored by the National Geographic Society's Yukon Expedition in 1935.

Before our entry into the Yukon, it was generally admitted that this region was mountainous, but beyond that and some strange rumors of men who had tried to float down the Alsek River, we had nothing to go on, for the International Boundary Survey had only dealt with the peaks of the St. Elias Range as seen from the coast, and not with the problems on the other side of the chain.

The expedition was organized and led by Bradford Washburn, who had previously led four other expeditions to Alaska, and whose abilities are well known. Andy Taylor, veteran exploratory mountaineer, was his right-hand man, together with Adams Carter who

The American Alpine Club is indebted to the National Geographic Society for the use of photographic illustrations. The official account of the Yukon Expedition will appear in the *National Geographic Magazine* for June.—*Ed.*

had climbed Mt. Crillon with Washburn in 1934. Hartness Beardsley of Springfield, Vermont, Ome Daiber of Seattle, and the writer completed the party.

Our plan was to enter the territory in February, using the great glaciers as avenues for exploration, and "get out" in late May before melting snow caused treacherous cracks to appear, making travel either impossible or too dangerous to risk.

Our equipment was carefully organized and proved efficient in every way. Such things as cold weather ski boots with extra high toes, long parkas with protruding hoods, and dry tan moccasins were invaluable, although we missed most of the cold weather—the temperature never dropping below —45°.

However, our first difficulties were not with the weather but with the Canadian Government, for we wished to use American planes in our reconnaissance and photographic flights. According to Ottawa, this was a difficult matter to arrange, for there was much red tape to go through, but we were told to go right ahead with our plans with the assurance that full permission would be granted us as soon as possible. We did go ahead and most satisfactory arrangements were made with Pan-American Airways, one of whose new, radio-equipped planes, with pilot, was to be at our service as long as we wanted it. Gas was flown in to Kluane Lake where we expected to have our air base, and our preliminary plans seemed completed.

Repeated wires to Ottawa had brought no change in the official communications: we were to go ahead; in a little time permission would be given us. In fact, it was not until one of the party was already at Carcross (Caribou Crossing), our Yukon base on the White Pass Railroad, that one more wire came, saying that our wishes could not be granted and we would have to use Canadian planes.

We could not reverse this decision and there were now only two alternatives before us: either give up the expedition entirely, or work with Canadian planes. The youngest of the two available planes was seven and a half years old. Neither had radios; both were badly equipped for photographic flying; *and each was serviced out-of-doors in weather from 30°-40° below zero.*

A note in the government communication had told us to take no unnecessary risks. We ground our teeth when we thought of it, for without radio what chance would there be of finding a

grounded plane in an area of over 10,000 square miles of mountainous country? As Bob Randall, the pilot, once jokingly said, "If we have to make a forced landing west of the Alsek, I might just as well nose her straight down. It would be much more simple."

But we felt we had to use these planes, and accordingly we took every possible precaution in telling where we expected to go, and in carrying emergency equipment. The pilots and mechanics were fine men and we had great confidence in them—otherwise we could not have gone. However, once in March, the engine of the Fairchild stopped when Washburn and I were high over the black water of Yakutat Bay. Randall primed her vigorously and she caught again, but as we flew eastward, with a missing engine, over the rugged masses of ice and rock, we were thinking of the Canadian Government!

Our party was united for the first time on February 27th, when Carter, Beardsley and I arrived at Carcross, 70 miles north of Skagway. We learned that Washburn and Taylor had made a reconnaissance flight the day before and had discovered three new glaciers from 40 to 60 miles long, running east and west right through the region we wished to explore. They had also found that Hubbard Glacier was nearly twice as long as any maps showed it, and that the intervening region between Mts. St. Elias, Lucania and Hubbard was full of peaks averaging about 9000 ft. In addition, they had stopped at Kluane Lake and arranged to hire John Haydon, a dog driver, and his six-dog team, to help us with our transportation along the glaciers.

It was decided that we should fly supplies in and establish a base camp on the most northern of the three previously unknown glaciers, which run through the backbone of the range. The eastern end of the glacier came to the Alsek River; the western end we thought might connect with another glacier, by which we might later cross the range and come out on the coast near Yakutat.

For a while things went smoothly. A few loads of equipment were flown in to the glacier, 150 miles west of Carcross, by planes equipped with skis; and on March 5th, Taylor, Carter, Beardsley and Daiber were left at a base camp some six miles west of the Alsek.

Two days later, Brad and I flew in to them at the camp and continued on an exhaustive photographic survey of the whole area.

This was the first airplane flight made through the interior of the St. Elias Range. Flying largely at 18,000 ft., with the door off in order to take pictures, the temperature averaged —20° all day, and the wind was not gentle. We flew directly between Mts. Logan (19,850) and St. Elias (18,000), and had nothing but respect for the Duke of the Abruzzi's party and the members of the Mt. Logan expedition. We had close views of Mt. Vancouver (15,700), which appears a dangerous if possible climb, and Mts. Cook (13,760) and Augusta (14,070), which look nearly as difficult. The sheer south face of King Peak, with its strange quartz veins, was most impressive, and our sight of McArthur Peak was almost too intimate as a sudden downdraught hurled us toward a corniced ridge. Hubbard (15,000) and Alverstone (14,500) to the east, and some unnamed peaks, were also noteworthy, but nothing could compare with the gigantic bulk of Mt. Logan with its long plateau—mile after mile of it over 17,000 ft. high.

We landed at the base camp, wearied by the rare atmosphere, and climbed out of our heavy clothes, for it was only —5° on the ground. (I would not have missed that flight for anything, but I hope never again to have such a long, cold ride.)

After lunch, Andy Taylor and Bob Randall flew to Kluane Lake, and brought back John Haydon and his dogs—three men, six dogs and a dog sleigh crowded into a small cabin plane.

Soon afterward, Washburn and I were returning to Carcross with a blinding sun setting directly behind Mt. Hubbard, and all the peaks from Crillon and Fairweather in the south, to massive Logan, bathed in a ruddy alpine glow. It was dark when we again taxied along the rough surface of Lake Bennet and swung stiffly from the plane.

We had planned for another trip the next day, but the weather was against us and a series of furious storms held us up until March 22nd, when we took a chance and, by flying over a layer of clouds, managed to get in to the camp. As we had expected, the dog food was used up and the dogs had been eating our rations for the last three days.

We found the dog team had moved part of the equipment twenty miles up the glacier to a more central point, where camp had been established. Despite the cold weather everyone was in good health, and we returned to Carcross in much lighter spirits.

MEMBERS OF THE NATIONAL GEOGRAPHIC SOCIETY'S YUKON EXPEDITION
Standing (left to right): Haydon, Beardsley, Daiber, Bates. Seated: Carter, Washburn (leader), Taylor

THE INFLATED BOAT WAS USED WHEN OPEN WATER WAS REACHED
Andrew Taylor is the pilot

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FLYING THE DOGS IN FROM KLUANE LAKE TO BASE CAMP

THE LOWER BASE CAMP. LOWELL GLACIER IN EARLY MARCH

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Again bad weather held us (for three more days we chewed moose meat), and it was not until the 26th that we were able to get away on our last photographic flight, trying to solve the problem of where the Alsek River went and to learn definitely whether we could get out through the range to Yakutat on the coast. This latter route was beginning to look feasible from the air when our trip was suddenly curtailed by a badly missing motor. Pilot Randall landed us at the upper base camp, and was off for Carcross in a shower of blowing powder snow. We were together again.

For the next two weeks we measured a base-line, occupied survey stations, explored in all directions from our main camp, and learned how to be perfectly comfortable in slightly sub-zero weather. Not the least of our blessings was the "Empire State Building," a five by six by eight-foot beaverboard shack to house the instruments, which had been cut to measure during our enforced stay in Carcross. Its walls, futuristically decorated when a frozen bottle of ink exploded, literally bulged when all seven of us crowded into it on cold evenings to listen to the radio or hold a council of war.

When Beardsley and Haydon had finished mushing the supplies from the lower to the upper camp, we began to explore the upper valley of what we called the Lowell Glacier, an ice highway leading at right angles from our main glacier close to the base of Mt. Hubbard, 25 miles away. From our airplane views of Hubbard we very much doubted whether we could climb it, but we certainly wanted to take a "whack" at it. Therefore we made several long reconnaissance trips 11 miles or so up the Lowell Glacier toward Hubbard. But as a plane was coming in on the 23rd of April (or the first clear day thereafter) we did not dare get too far from the main base camp.

So it was agreed that Haydon, Taylor and I should explore a glacier running northeast from the Lowell Glacier, and try to get some fresh meat, as well as poles for survey markers. Meanwhile the others were to connect the parts of the ground survey.

Ours was a most interesting trip. We left on April 20th, and made rapid progress skiing ahead of the dogs. The second day out was Easter Sunday, and after we had covered about 12 miles, Johnny saw two large grizzlies. He and I went for one of them, and after a two-mile stalk got an excellent shot at 150 yards. But I made a serious error—firing at the bear when he was on a

steep snow slope almost directly above us. Though he was badly wounded, he rolled down to within 50 ft. of Haydon and me, snarling and growling, but fortunately too severely hurt to come for us. The finale was brief yet exciting, but in a few minutes he was dead and we were starting to skin him.

The next day we ate bear steaks, and followed on to the end of the glacier where we found timber, cut some poles, and noticed many signs of game. In two more days we completed our work, and on the morning of the 24th started for the base camp with snowflakes sifting down around us. Unfortunately this storm continued, and though we fought it mile after mile, it was not for three days that we reached the main camp, low on food and ready for a rest.

We learned that the plane had come in on the 22nd, Brad had made the final photographic flight, and, joy of joys, there was a pile of mail for each of us. That day we feasted on bear meat hamburger (put through the meat grinder) and made plans.

It was agreed to take a flying crack at Mt. Hubbard before leaving the base camp on the trip to Yakutat. Good weather favored us, and for the next week we worked from dawn to dark, breaking trail on snowshoes for the dogs and man-hauling sledge loads in relays 20 miles up the Lowell valley to a camp at 8300 ft. This spot was a belvedere: across from us great avalanches fell from the sheer 6500-ft. cliffs of an unnamed peak (I hope it will be called Mt. Washburn), which from the east bears a close resemblance to famous K-2.

We were now ready to attack Hubbard on May 2nd, but on May 1st, Washburn, Beardsley and Haydon made a survey and reconnaissance trip along the Alverstone shelf. This was our only possible route toward Hubbard, due to the time at our disposal; and indeed, from the air, it was the best appearing route up the mountain.

But the reconnaissance party, returning in a bitter wind, crushed our hopes. Washburn had accomplished a noteworthy piece of surveying at over 12,000 ft., probably the highest station ever occupied in Canada, but Hubbard and Alverstone were reported out of the question for us to climb. The route we had hoped to take proved to be an avalanche trap, and even the shelf the others had followed was swept by falling seracs and infrequent snowslides, which tumbled from the high cliffs above.

All of us were bitterly disappointed, but there was nothing we could do. We had taken our flying "whack" at the mountain and lost.

The following day the weather turned definitely for the worse, and it was through spasmodic gusts of snow that we pulled our sleigh into a lower camp, with Andy masterfully "riding herd" on the gee pole. The storm continued, but the next day three of us worked our way down to the lower camp with the dogs, trying to use what we could of the old trail; and a couple of days later we were all together in the "Empire State Building," getting news over the radio from Berlin and Bordeaux.

The time had now come for us to finish up the last odds and ends of our surveying and to start preparations for the trip to Yakutat. But while we were doing this, an accident occurred that nearly had serious consequences. As we were taking the unhitched dogs up over an icefall to where we had left the dog sleigh, Monkey —not 10 ft. from the trail—stepped on some loose snow covering a crevasse and disappeared. Fanny and Brownie ran to see what had happened and fell likewise. The other three dogs were held and tied, and we crept cautiously to the edge. Below, the light faded away to blackness—not a sound came up to us!

As fast as possible, we got ropes and Washburn rappelled off—a nasty job with that overhanging snow above. Fifty, 60, 70 ft. he went down, a projecting ice block shielding him from sight as we peered worriedly after him. No loose snow fell, however, and at last he called up to us, "They're here on a ledge just below me, but they look in bad shape." In a moment he had tied them on another rope. We wanted Washburn out from under the loose snow first, and pulling carefully we soon had him blinking in the sunlight beside us. It was the dogs' turn now, and again we pulled, but Monkey's harness broke and only Fanny and Brownie reached the surface. This time Ad Carter went down, and he and Monkey in turn were triumphantly hauled from that dismal crack.

As each dog emerged, we felt him swiftly for injuries, but, wonder of all wonders, none of these dogs were harmed. They had fallen 70 ft. sheer onto rough ice (the ledge saving them from a drop of several hundred feet more), and except for the loss of a toenail were entirely unhurt, surely a tribute to the exceptional toughness of the husky dog.

The next day we started to move supplies toward Yakutat, and for ten days we sledged and hauled, surveying as we went when the weather permitted.

But on May 17th another unforeseen accident occurred. Andy was the only one in camp at the time, and was cooking dog food outside one of the tents, when without warning the cook tent collapsed on top of a lighted stove. The top of the tent, weakened by many storms, had given way to a gust of wind, causing the tent pole to shoot up through the roof. In a moment the tent was a blazing mass, but there was valuable equipment inside and without a second thought Andy rushed to it. How he got out what he did I don't know, but when we next saw him we found his hat destroyed, most of his hair burned off, and great gaping holes in his coat and pants. Yet he had saved a great deal.

Washburn's sleeping bag, air mattress, and some extra clothes were ruined, but at least Andy was safe. We found later that a can of gasoline inside the burning tent with Andy, had turned black all over but had not exploded!

Fortunately we were able to double up in sleeping bags and get along without the missing articles.

The next day the party broke up. We were now over 30 miles from the base camp and about 25 miles from tidewater. Washburn, Taylor, Carter, and Beardsley were to try to get through to the coast at Nunatak Fiord, where Washburn and Taylor would begin a 40-mile row to Yakutat in a little rubber boat, getting a fishing smack to come back for Carter, Beardsley, and the equipment.

As a check, in case anything proved wrong with the Yakutat route, it had been decided in April that a plane should meet some members of the party on June 3rd at Bates Lake, the last mapped lake on the government map, some 20 miles east of the Alsek River. Ome Daiber, John Haydon and I were the members of this party.

Accordingly on May 18th, Ome and I, after apparently casual handshakes and "good lucks" all around, started on our long 80-mile trek to Bates Lake. Johnny was to follow us the next day.

That night we spent at Black Tooth camp, and the next morning we were just preparing to leave when we heard cries of "Whoa —mush gee—whoa now." Johnny had made an early 22-mile run with the dogs and our little party was now together. We found heavy going that day and made the base camp with the flurries

THE DOG TEAM OF THE YUKON EXPEDITION CROSSING A GLACIER

THREE DOGS FELL INTO A DEEP HOLE IN THE ICE BUT WERE RESCUED WITHOUT INJURY

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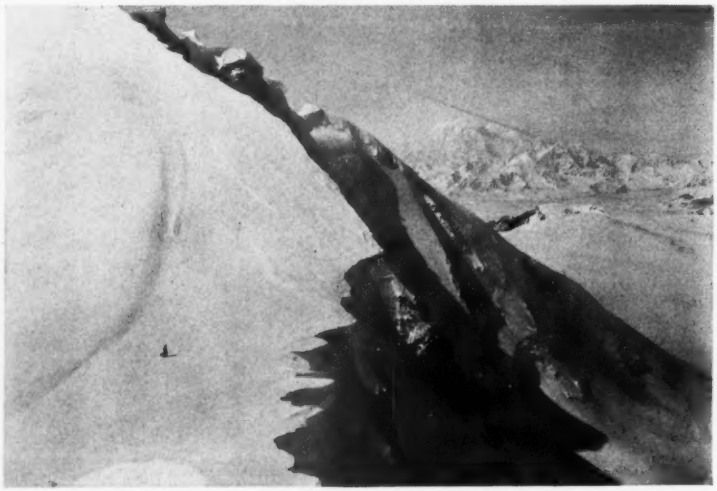
ASCENDING LOWELL ICEFALL ABOVE BASE CAMP



JUMBLED, SNOW-CLAD PEAKS AND DEEP GLACIER-FILLED VALLEYS
Seen from slopes of Mt. Alverstone. Mt. Logan in background

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of an oncoming storm blowing into our faces. Then for two days we rested up imprisoned by a whining wind but thankful we had not been caught elsewhere.

On the 22nd we started on the 25-mile trip down the glacier. Johnny and the dogs had a difficult load while Daiber and I man-hauled 300 lbs. on a sledge made of skis. We made 12 miles that morning before the softening surface made us halt and put up the tent.

The following day I shall not soon forget. We had made only a few miles, winding through interminable cracks, when a hail came from Johnny who was following us. We looked back and saw that the rear end of the dog sleigh was jammed in a crevasse. Fanny, the wheel dog, had broken through and been towed out by the motion of the team, but the sleigh was jammed. I hurried back, and while breaking away the crust to see the extent and direction of the crack, had a most unpleasant scare. Without warning, I heard hollow sounds of snow cracking directly under my feet, and jumping to one side found that I had been standing directly over a three-foot wide crevasse. This ran at right angles to the large one, but positively no sign of it was visible on the surface.

We unloaded the sleigh carefully and removed it from the crack, but as the crust was very weak that morning we decided to camp. There were cracks all around us. The tent, in the best place we could find, was over a tiny one; there were little ones at the edge of the tent; and Ome later went into one up to his waist not 10 ft. from the door.

How we longed to get off that treacherous snowfield! The day slowly passed, the dogs whinning restlessly from time to time, and at ten in the evening we skied cautiously out to reconnoiter a route through this evil sector. The going was nasty—such ugly crevasses as we saw that night I hope never to see again—but after an unpleasant trip we eventually found a safe route through them.

Back to camp we came for a moment or two of sleep, and at 2.30 A.M. we were away again, this time sliding over the cracked surface on a rock-hard crust. Late that morning we got off the glacier, and by supper time had established a camp on the sand of a small lake shore, at the foot of the ice, and not three miles from the swift-flowing Alsek. We were thankful that part of the trip was over.

Two days later we were camped by the river, eating pintail duck for supper and wondering how to cross this turbulent stream, some 100 to 150 yards wide. There was no timber within five miles of us and not a bit of driftwood on the west bank, but we solved the problem by making a raft of our two air mattresses, bracing and stiffening them with two pairs of skis, and paddling across with a ski used as a double paddle. On the opposite shore we found scattered driftwood, and with the axe formed a small, wobbly but serviceable raft, made of skis, driftwood and the air mattresses. Six hours later, despite difficulties with floating ice, the current, and small rapids, we stood successful on the eastern shore, our second major problem now behind us.

But the week ahead of us turned out to be worst of all—back-packing 4000 ft. up along stream beds filled with water or bridged with knee-deep slush, or fighting through devilish alders and buck-brush that pulled and dragged us back. Every evening we reconnoitered; every morning we rose early to get the crust; and finally at 10.30 P.M. on the 1st of June we reached the shores of Bates Lake—now a reality, no longer a mirage, but *frozen tight from shore to shore.*

This lake is the most beautiful spot I saw in the Yukon, and for many days it was our hunting ground. Not knowing how long we might be iced in with no plane able to land, we chose to increase our diminutive supply of food with bear roots or whatever we could find or shoot; so, for a day or two, porcupines formed the staple portion of our diet.

However, luck was with us, and two days after reaching the lake shore a plane flew in and dropped us food, mail, and *a note from Washburn.* The note told us that the Yakutàt party had reached the coast, but as we afterward learned, only after following a dangerous and highly unpleasant route through a region guarded by sudden rock slides and falling seracs. The passage through the range had been successful!

Three minutes after the plane was gone, we sat reading our mail, eating the new food ravenously, and talking all at once with our mouths full. As one package of food had landed on a rock, the largest piece of cracker we found was the size of a silver dollar, and the butter was impregnated with coffee grounds, rice and beans.

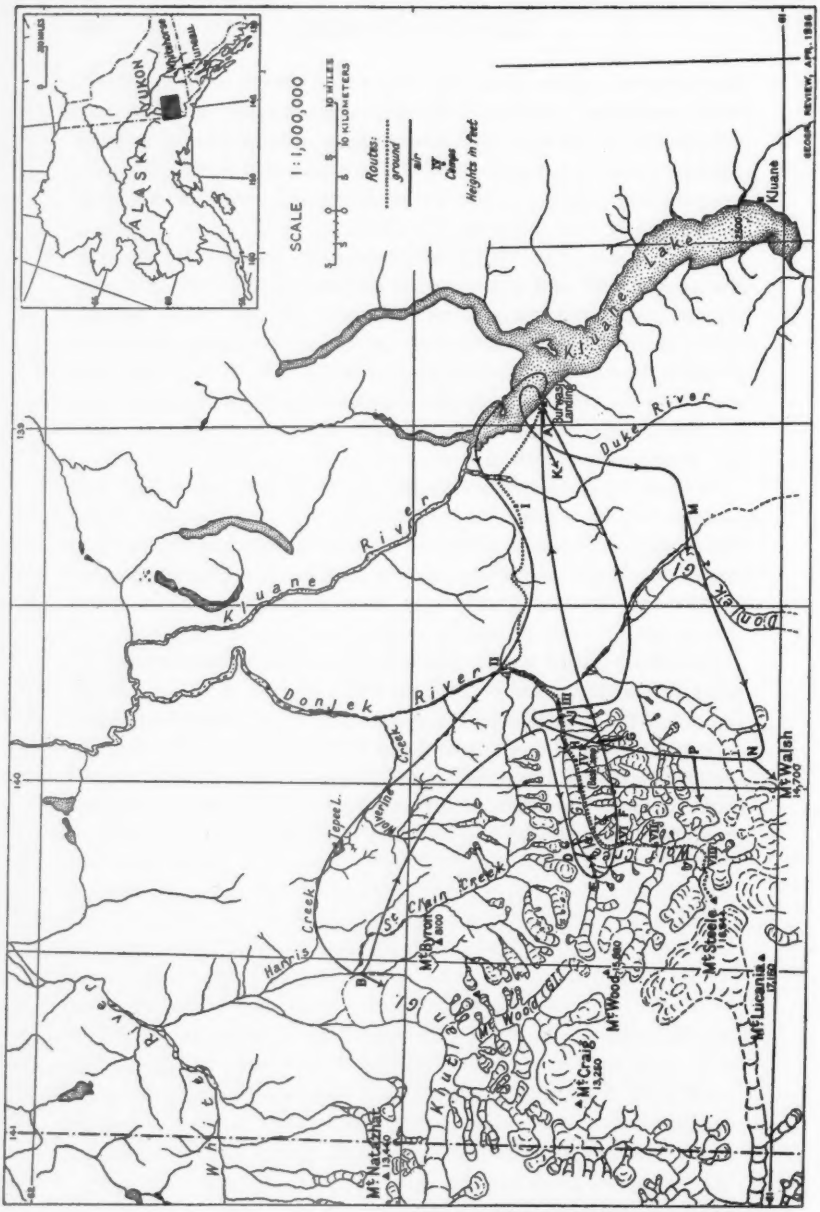
But still we had no meat for ourselves, or more important for the dogs, and it was not till Johnny and I shot a large bull moose

that the larder was in good shape again. A choice of meat (liver, heart, tenderloin) made life brighter, and we had not tired of resting when a few days later the ice went out enough for a small plane to come in and pick us up. So it was that by the 11th of June, the last member of the Yukon Expedition was investigating the benefits of civilization in Whitehorse.

Our trip was over. All materials were on hand to make a first rate map and fill in the blank space on other charts. We had discovered some large new glaciers and many stunning peaks, two of which were named for King George and Queen Mary in honor of their Silver Jubilee. We had found a new route from the interior to the coast through the heart of the St. Elias Range, and we were all returning in excellent health, although some of the men had spent ninety consecutive days on the ice.

Except for transportation problems, the country we visited is a paradise for the climber, and I am sure it will not be many years before parts of it will be revisited. The great distance of our base camp from Mts. Vancouver, Lucania, and the other big peaks was unfortunate, for we should have liked to examine them more closely, but ours was a mapping expedition, not a climbing one.

Summing up the trip, I find that three factors operated in our favor: the unmentioned but helpful attitude of the Royal Mounted Police and the Canadian people as a whole; the wonderful coöperation and confidence that the National Geographic Society extended us; and above all, the unselfish determination of a group of real *men*. I can pay no higher tribute to Bradford Washburn and the group that worked with him shoulder to shoulder.



Courtesy of the Geographical Review, *published by The American Geographical Society of New York*

THE MT. STEELE AREA, ALASKA, SHOWING FLIGHT LINES AND ROUTE

The Ascent of Mt. Steele

WALTER A. WOOD, JR.

ABOUT 40 miles north of Mt. Logan, in Yukon Territory, lies a group of peaks which, while more publicized neighbors have been visited, climbed and studied, has remained comparatively neglected. Due to the proximity of the International Boundary the principal peaks were recognized and their positions and heights determined during the operations of the International Boundary Commission survey in 1909, 1912, and 1913. Since then the group has received scant notice. The Mount Logan expedition mentions Mt. Lucania, the highest unclimbed peak in North America, and Allen Carpe reports having seen Mts. Lucania, Steele, and Wood[1] from the summit of Mt. Bona. But with the exception of hunting parties which have periodically visited the more accessible valleys to the north and east, the glaciers and peaks of the groups have remained unexplored.

It was the purpose of the Wood Yukon Epedition[2] of 1935 to conduct an experimental aerial survey of the region, using recently developed methods of mapping from air photographs. The survey formed part of the research program of reconnaissance aerial surveying of the American Geographical Society of New York under whose auspices the expedition went into the field.

A study of existing maps indicated that the heart of the range could most easily be reached from the east via Whitehorse and Kluane Lake, but final decision on routes once Kluane Lake was left behind was reserved until a flight could be made to discover the reliability of the few maps which indicated glacier systems leading from the range.

Although the scientific program was of primary importance, it was nevertheless hoped that the expedition would be successful in climbing one or more prominent peaks, and at the outset Mt.

[1] Mt. Lucania (17,150 ft.), named by H. R. H. The Duke of the Abruzzi for the ship which brought him to America. Mt. Steele (16,644 ft.), named in 1900 by J. J. McArthur for Col. S. B. Steele, in command of the Northwest Mounted Police, Dawson, 1899. Mt. Wood (15,885 ft.), named for Major Z. T. Wood, commanding the Northwest Mounted Police, Dawson, 1900.

[2] For a more complete account of the expedition's activities, see *Geographical Review*, xxvi, April 1936.

Lucania had been tentatively selected as the climbing objective. To this end the personnel of the party included six mountaineers, I. Peace Hazard, Joseph W. Fobes, Harrison Wood, Hans Fuhrer, guide, Mrs. Wood and myself. Miss Adeline Hazard accompanied the climbing party to one of its upper camps and Mrs. Harrison Eustis journeyed to the advance Base Camp.

Toward the end of June all the members of the party gathered at Burwash Landing, a small settlement near the northern end of Kluane Lake. The Jacquot Brothers, who for more than a score of years have bred and raised horses for outfitting hunting parties, supplied the necessary pack train, and on July 1st we set out with thirty-four pack and saddle horses westward towards the mountains.

Though it is but 30 miles from Burwash Landing to the Donjek Valley, we made it in two stages. The entire way led across water-soaked tundra into which the horses sank at every step and we were thankful indeed when the firm floor of the Donjek Valley appeared below us. The Donjek River flows northward from the Donjek Glacier which in turn is fed by the snows of the St. Elias Range. Its waters join those of White River, one of the principal tributaries of the Yukon. To the west of the Donjek and between it and the International Boundary rise the peaks in which we were interested.

A flight over the area to obtain photographs for mapping purposes had given us a good idea of the topography. It had also dispelled an important illusion. Existing maps showed a large glacier system flowing northeast from the slopes of Mt. Lucania and draining into the Donjek Valley a few miles below the snout of the Donjek Glacier. In so doing the main ice stream is indicated as flowing between Mt. Wood on the north and Mt. Steele. Actually nothing of the sort occurs, for a 12-mile ice-encrusted ridge connects Mt. Wood and Mt. Steele, and its lowest point cannot be lower than 11,000 ft. Thus we would be cut off from Mt. Lucania unless a series of camps could be established from the Donjek Valley up 20 miles of glacier, over the ridge and onto the slopes of the mountain. The idea was anything but entertaining. Such a program, besides being fraught with considerable danger through our being cut off from our base in the event of prolonged bad weather, would have seriously handicapped our scientific program. Our flight did show, however, that though the features of the glacier shown on the map were somewhat dis-

torted, such a system did exist and afforded an avenue of approach to both Mt. Wood and Mt. Steele. It was decided, therefore, to investigate this system and if possible climb one of those two peaks.

On July 5th Base Camp was established at an elevation of about 4000 ft., just below timber line, and above the snout of the glacier which we had observed from the air. To conform to the local name applied to its valley we named it Wolf Creek Glacier. Some 10 miles to the west the glacier could be seen to bend towards the south a few miles short of Mt. Wood which towered 12,000 ft. above us, framed by the abrupt valley walls which we came to realize are characteristic of the topography of the region.

Progress now resolved itself into establishing a line of camps up the glacier. This was by no means an easy task for the glacier itself could not be used as an avenue. The gradient is slight, and the lower 15 miles are in a state of stagnation. It resembles nothing so closely as a long succession of refuse heaps. Here and there, where watercourses have cut their way down to the glacier bed, ice shows through the mantle of detritus. Small lakes are constantly being formed by damming only to break their bonds and continue the disintegration of what must once have been a fine ice stream. Our only alternative was to follow the true right bank, which, though composed of morainal material, and consequently most disagreeable going, at least occasionally afforded narrow sheep trails along which progress was easy and a delight.

We were still about 20 miles from the foot of Mt. Steele and, in order to prevent much loss of time through backpacking the entire supply of equipment and food up the glacier it was decided to investigate the possibility of pushing the pack horses further up. While Hans and I went off on a three-day reconnaissance the remaining members in Base Camp began the construction of a trail over which to lead the horses.

Our investigation, though beset by the same rainy weather which dogged us all summer long, was successful in that from a summit of about 10,000 ft., above the bend in Wolf Creek Glacier, we were able to catch glimpses of the upper reaches of the glacier and to determine that, by following it, we could reach the base of Mt. Steele. We also discovered the upper limit to which horses could be led. This limit took the form of a tributary glacier entering the main ice stream about a mile above the bend and across which horse transport was quite out of the question.

On returning to Base Camp we were amazed to find a graded route almost suitable for motorcycles had been constructed for about 2 miles up glacier. In addition, a tributary torrent had been bridged with five spruce trees and lashed to boulders on either bank, and since the nearest trees were half a mile below the torrent, it is to the credit of those engaged in its construction that without it it is improbable that the higher camps could have been established in time to benefit by the eventual spell of fine weather during which Mt. Steele was climbed.

As the highway progressed upwards, survey operations were being carried out, and when finally the pack train, which had returned to Kluane Lake for additional supplies, arrived, all was in readiness for the advance to a higher Base Camp.

There can be little doubt that the eventual success of the expedition's program, both scientific and climbing, was made possible by the horses. My experience with pack trains was limited in the extreme and I had imagined that the tundra passage would approach the limit of what they could do. Briefly, any such illusion was quickly dispelled. On reaching the end of the graded trail they made their way over boulder-strewn slopes, across rock slides, and through raging torrents high from recent rains and melting snow, with but the single slip on the part of one horse which lost its footing on a smooth slab, somersaulted down some 50 ft., then collected itself and its load and placidly rejoined the file as though nothing had occurred. In two trips they brought forward in equipment what would have required a month or more to pack on men's backs. It was therefore with regret that on July 20th we said good-bye to them and turned to the problem of advancing up the glacier to the foot of Mt. Steele.

As mentioned previously, the gradient of Wolf Creek Glacier is gentle, about 125 ft. per mile, so at the advance Base Camp we found ourselves still below the 6000-ft. contour and about 11 miles in a direct line from Mt. Steele which towered glistening white at what appeared to be the head of the glacier. An intervening ridge around which the glacier sweeps masked its lower slopes, but that Wolf Creek Glacier would lead us to them there was little doubt. No other drainage was possible.

Mt. Steele stands on the watershed of the Yukon River and is characterized on the Yukon side by three ridges and two faces. From our advance Base Camp, which came to be known as

MT. LUCANIA AND MT. STEELE, THIRTY MILES DISTANT, FROM POSITION M OF FLIGHT-LINE

Foreground peaks flank Donjek Glacier

MT. STEELE AND WOLF CREEK GLACIER

Photos, Walter A. Wood, Jr.

THE UPPER 9000 FT. OF MT. STEELE
Camp 8 was situated at foot of central ridge

PEAKS SOUTH OF WOLF CREEK GLACIER FROM 11,500 FT.
Sharp snow-peak in right middle-distance was ascended by W. A. Wood and Fuhrer
Photos, Walter A. Wood, Jr.

Camp 6, two of these ridges were clearly visible, one the aforementioned ridge connecting Mt. Wood and Mt. Steele, and the other a long, broad ridge sweeping from below the summit southeastward towards Mt. Walsh (14,700 ft.). The third or east ridge descended from a plateau below the summit towards Camp 6 then bent sharply southeastward and became lost to view behind an intervening ridge. The northeast face, in full view of Camp 6, consisted of a long snow and ice slope descending from the plateau and was much broken up with séracs. Of the face enclosed between the east and southeast ridges we could see nothing.

Speculation was rife as to which of the various faces or ridges would provide a safe route to the summit. The northeast face was immediately discarded as too dangerous and the southeast ridge was also counted out as too circuitous, but possible, should the other ridges prove undesirable. This left the north and east ridges and the unseen southeast face. Of the two ridges, the east seemed to provide the most direct route if certain steep slopes and knife-edge ridges could be overcome, and it appeared also that it might be possible to establish a high camp on a shoulder about 4000 ft. below the summit.

Before any definite climbing plans could be made, however, it was necessary to approach the peak and study it more closely. Accordingly, during the week following the pitching of Camp 6, supplies were pushed forward to Camp 7 on the right bank of the main glacier. Unseasonable weather which, we found out later, was prevalent all along the Coast Range during last summer, prevented occupation of Camp 7 since the food supplies cached there were intended for a camp on Mt. Steele. Finally, on July 25th, after a night at Camp 7, Hans and I pushed on up the glacier which at this stage was beginning to resemble what the word signifies. Mt. Steele was obscured behind the ridge mentioned previously as obstructing the view of the lower slopes from Camp 6, but the glacier could be seen to sweep around the end of it and on reaching the bend we were rewarded with a view of our peak rising over 9000 ft. above the glaciers at its base. It was immediately obvious that the east ridge was worth an attempt. In fact, from this angle it appeared to be the only possible means of safe approach. We continued on and six hours after leaving Camp 7, arrived at the lowest point of the east ridge and selected a sheltered site for Camp 8 on the moraine of a tributary glacier draining from Steele's

northeast face. After pitching a tent and stowing away other paraphernalia, we retreated back to Camp 7 where we were joined by Hazard, Fobes, and H. Wood who had come up from Camp 6 the same day with additional equipment.

The following day all five of us advanced to Camp 8 with two more tents, sleeping bags, food, and clothing. It was the hardest day's packing of the trip, the average load being about 75 pounds with at least one pack being nearer 100. It was planned that the next day would be one of rest, and on the day following we would attempt Mt. Steele. This program was only half completed, for although we enjoyed a day off after seven consecutive days of hard packing, the weather, which for three days had been very fine, resumed its attempts to drive us out of the region. By the morning of July 28th two feet of snow had fallen and we were only too glad to retreat down to Camp 7 where we were greeted with hot food and drink by Mrs. Wood and Miss Hazard. When the weather showed no signs of clearing up we all continued through to Camp 6, planning to bring up more food at the first opportunity.

Two days later the advance began again only to be stopped at Camp 7 by even worse weather than before and again we retreated to the comfort of the advance base. Finally, on August 6th, after nearly a week of foul weather during which Mt. Steele was visible only two or three times, and then but for a fleeting moment or two, the day dawned cold and clear and we decided on one more advance. Conforming to schedule we retired to bed that evening to the sound of gently falling snowflakes on the tent roof.

By this time our frequent advances had stocked Camp 7 with sufficient food for a two-weeks' residence for four men, so rather than retreat again we proceeded forward to Camp 8 despite the weather. Snow continued to fall through August 7th but at mid-day on the 8th the clouds broke quickly and we decided that, should the night be clear, we would leave at midnight and have one final go at the mountain. Consequently all was put in readiness before retiring for a few hours' rest at 6.00 P.M.

At 10.30 P.M. we awoke and breakfasted, but those last-minute arrangements which invariably seem to occur in mountaineering, prevented our setting out until half an hour after midnight. The weather was clear but not cold, only 26° F., and we made our way quickly upwards over rocks and finally a long snow slope to the top of the first buttress which marks the end proper of Steele's east

ridge. From here we had our first view of the summit from a point on the mountain. Looking across the sheer southeast face with its occasional rock pitches but predominantly icy character, it was difficult to believe that the summit still towered nearly 7000 ft. above. The east ridge rises in a series of moderately steep snow ridges with gradual intermediate lessening of slope until the shoulder where it bends towards the summit is reached. This shoulder was visible from the first buttress and conservative estimates seemed to indicate that we should reach it in about four hours. Although we did not set foot on the shoulder we reached its altitude in slightly less than seven hours.

From the buttress upward the climbing was never difficult though more than once we were forced away from the ridge by deep snow and followed the margin of rock to the left. After reaching the 11,000-ft. level we came to the bottom of a long, steep snow slope, one which was clearly visible from Camp 6 and about which we had often speculated. It was certainly steep, 50° by our clinometer, and we soon found that it was going to be laborious, for the recent snow falls had left a deep blanket of new snow on its surface. Especially arduous was it for Hans as leader, and only after two hours of heart-breaking effort did the slope lessen and we found ourselves on a section of nearly horizontal ridge but still below the shoulder. It was 7 o'clock and we halted for a much-needed breakfast. The weather was glorious but higher up on the ridge and on the summit slopes we could see streamers of snow being eddied into the air. This did not particularly concern us, for scarcely a clear day had failed to show the presence of wind on the upper slopes and we were prepared for it, or at least thought we were.

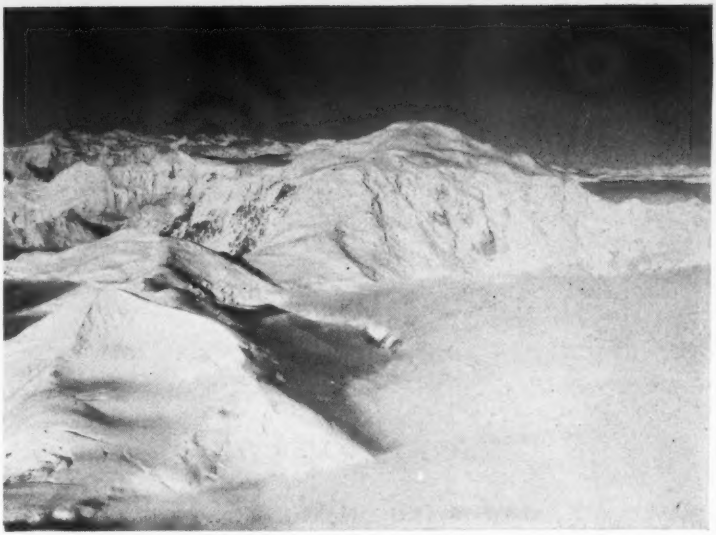
From the breakfast place the ridge narrowed to knife-edge proportions and the fresh snow did not make for rapid progress. Shortly after 8 o'clock we first felt the wind and stopped to put on our down-lined parkas. A few moments later ice was encountered beneath the thinner coating of snow where the wind had blown away the most recent fall. With each upward step the wind seemed to increase, and when we stopped to put on crampons we found the maneuver almost impossible. Snow sifted into everything and stiff fingers refused to obey orders. Harrison and Hans in some as yet unexplained manner managed to affix their irons but Joe and I desisted after feeble efforts. In order to give Hans

a much needed rest we changed the lead and continued upward and across the slope, aiming at a point on the east ridge above the shoulder.

Now for the first time we began to doubt our eventual success. The wind still increased in violence and we were high enough to observe milky colored clouds drifting toward us from the sea. Despite the warning we kept on going until at 10 o'clock a halt was called to discuss the situation. We had progressed only 500 ft. during the last hour and the wind was now picking up slabs of crust two feet in diameter and hurling them across the ridge above us. The summit was scarcely visible amid a swirl of blowing powder snow. To the south Mt. Logan stood up gray and unimpressive while the sky above us had acquired the same milky appearance at first noticed toward the ocean. Though we were all comfortably warm in our parkas, it was evident that at our rate of progress we could not hope to reach the summit before the storm broke in earnest. Ten years previously another party had experienced the severity of a high-altitude Yukon storm at a point clearly visible from our present position. We had no desire to repeat the experience. Besides, the deep snow had taken its toll lower down and the altitude was beginning to tell on us. Reluctantly, though as it turned out, wisely, we turned back and, following the wands inserted in the snow, were soon down to the knife-edge ridge. Here we were subjected to the full force of the wind and, despite the care which such a ridge necessitates, one of us was blown clear of his steps and tossed out onto the northeast face. The rest of the descent was uneventful and we arrived in camp shortly before the storm broke.

All that night the blizzard raged, at times the flapping of the tents sounding like the fire of a machine gun battery, and we were frequently brought from our sleeping bags to hold them down. On August 10th the storm abated momentarily and Hans and Joe went down to Camp 6. Harrison and I remained, hoping against hope that the weather would clear and allow us to complete necessary survey operations. Another attempt on Mt. Steele we did not even consider. But the blizzard did not let up. After allowing Hans and Joe a two-hour headstart, it resumed its attack with more ferocity than ever. For two days and nights we were confined to our sleeping bags with three *sorties* a day to the food tent.

At noon on August 12th the weather staged one of those about-faces to which we were accustomed, and in the afternoon we man-



MT. LOGAN (40 MILES DISTANT TO LEFT) AND MT. WALSH
From 13,500 ft., at Position N of flight-line

PEAKS OF ST. ELIAS RANGE SOUTH OF WOLF CREEK GLACIER
From Position G of flight-line

Photos, Walter A. Wood, Jr.

PEAKS 10,000 FT. HIGH FORMING EASTERN FRINGE OF ST. ELIAS RANGE

MT. WOOD
From plane above Wolf Creek Glacier
Photos, Walter A. Wood, Jr.

aged to establish a survey station on the lower slopes of the mountain. Then the clouds closed in again and to bed we went. Joe and Hans ploughed up from Camp 6 the next day and reported over a fot of snow there. At Camp 8 we had had 3.5 ft.

The morning of the 14th broke clear and cold, the coldest we had experienced there (+12° F.). Wishing to get one more station as high as possible on Mt. Steele we set off at 9 o'clock and after reaching the first buttress, followed our footsteps of the first attempt. To our amazement the surface was firm and the going far easier than on our previous visit. In less than three hours we reached the foot of the long 50° slope and soon completed our observations. By two in the afternoon we were back in camp and discussing the advisability of another attempt on Mt. Steele. The weather was fine and no wind had been observed on the upper slopes. We decided to leave after midnight.

When we arose at 11.30 P.M. there could be no mistaking the fact that we were due for a fine day. The night was wonderfully clear and cold (+5° F.) and we prepared to leave to the accompaniment of chattering teeth. Later on the minimum thermometer in my sack registered —4° F. We left camp at 1.15 and climbing quickly in our prepared steps, reached the survey station as dawn was breaking. A slope of drifted snow checked us momentarily, then we encountered the dreaded 50° slope. But today it was different. A bit of searching landed us on a hard surface of wind slab and we had little more to do than to kick steps straight up. The knife-edge ridge, though troublesome, was uneventfully passed, and after a taxing hour on a sheltered slope of deep snow we emerged on the long-sought shoulder. It was 8 o'clock. We were well in advance of our previous schedule with half the climb completed. On this climb we alternated the lead every fifteen minutes to conserve our strength and climbed unroped, each member of the party being entirely capable of looking after himself.

From the shoulder the ridge broadened and sloped only gently for a few hundred yards. Due to its breadth, good snow was hard to find and we wallowed at times to our thighs in powder snow. As we approached the plateau below the summit the slope quickly steepened and the ridge narrowed in harmony. Occasionally we encountered ice and steps had to be cut, but this was far to be preferred to wading. As the ridge steepened we found ourselves enjoying the climb more and more. It was the only technically difficult part, and we made the most of it.

Shortly after noon we emerged onto the plateau and saw the final pyramid at close quarters. Our altitude was estimated at just short of 15,000 ft. This left us less than 2000 ft. to go.

Setting out across the plateau, which must be 1000 ft. wide, we were soon reduced by abominable snow to crawling across the surface. The humor of it impressed me. Here were four supposedly normal human beings crawling across a snow field 15,000 ft. up in the air, engaged in what they fondly believed to be a sporting venture. The humor would quickly have disappeared had a crevasse been encountered. But none was met and we found ourselves on the final slopes. Of the last hour memory bears but fleeting record. Scarcely a step was taken but we measured our progress against the fast-sinking summit of Mt. Wood to our north. We were now changing the lead every 100 paces to reduce the monotony of setting a pace. Finally during my turn in the lead—the twenty-eighth change since the plateau; we counted them unerringly as an excuse to take our minds off tiring limbs—I looked ahead for the best route. No search was necessary. Before us rose a four-foot wall of snow and nothing more. At 2.30 we stepped onto the summit of Mt. Steele.

Although the air was cold (+15° F.), not a breath of air stirred. Far away to the northeast a bank of clouds obscured the horizon and to the northwest stretched a sea of cloud through which two peaks emerged, Mt. Bona and what was probably Mt. Sanford. The remaining arc of horizon was cloudless. Near at hand Mt. Lucania overtopped us by 500 ft., a fine peak from this angle and worthy of any attack directed toward its summit. Forty miles away but seemingly nearer twenty stood Mt. Logan, probably the most massive mountain in the world, though far from beautiful; Mt. St. Elias, partly obscured by Mt. Logan; Mts. Cook, Vancouver, and Hubbard, farther away but beautiful in the haze of distance; and finally, so distant as to be almost mistaken for a cloud, Mt. Fairweather. Between the Hubbard-Vancouver group and ourselves stretched the maze of glacier systems and peaks explored earlier in the year by Bradford Washburn.

Only to the northeast was ice-free ground to be seen. Past the Wolf Creek Range, through the heart of which we had come, a dark trench wandered northward—the Donjek—and farther back the hills to the east of Kluane Lake merged into the distant cloud banks. We left the summit after a brief half hour and 9 o'clock in the evening found us glissading the last few hundred feet into camp.

SUMMIT OF MT. STEELE, AUGUST 15, 1935
Harrison Wood, Joseph W. Fobes and Hans Fuhrer

MT. LUCANIA FROM SUMMIT OF MT. STEELE
Mt. St. Elias in left background

Photos, Walter A. Wood, Jr.

GARINDA CAMP, THE HIGHEST CAMP

CAIRN AND CROSS ON TOP OF MT. ALBERT EDWARD
S. E. peak in background

Photos, R. Archbold

An Ascent of Mt. Albert Edward

RICHARD ARCHBOLD

WE arrived at Port Moresby, the capital of Papua, in the beginning of February, 1933. Papua is the southeast section of New Guinea, being owned by Australia. We spent a couple of months getting house-boys and carriers which would be necessary for the final ascent. Ours was the 1933 New Guinea Expedition of the American Museum of Natural History. Mt. Albert Edward attains an elevation of 13,057 ft. (3980 m.), being with Mt. Victoria the highest peaks in Papua, and undoubtedly the loftiest in the eastern half of the island. In the western half, however, Carstenz and Wilhelmina both reach 5000 m.

Any mountain climbing in Papua depends for its success upon the organization and preparation before one starts. There are as yet no villages with European inhabitants from which one can begin the direct ascent of a mountain. Consequently this island, lying but a few miles to the north of Australia, has been only scratched along the coast by white people; and very few prospectors have worked inland, with the exception of the region east of Mt. Chapman and the gold mining area in what is now the Mandated Territory of New Guinea or the old German New Guinea, Kaiser Wilhelmland.

The organization of any trip in Papua is always made more difficult by the fact that one has to carry all his supplies, for one can never count on native food. Although from time to time one finds considerable amounts, native food should be relied upon only for a change in diet.

This uncertainty of obtaining native food necessitates considerable double banking wherever mules or carriers are used. A native carrying nothing but food for himself can travel only ten days inland on his supply before having to return to the coast. Mules, of course, are not dependent upon food transported inland; consequently, they are not subject to this evil. But they do have a disadvantage in not being able to go off constructed trails. There is also a disadvantage in that the available paddocks hold only

fifteen to twenty and a number of stops have to be made where there is no food at all.

The ascent of Mt. Albert Edward was made primarily for the purpose of studying the fauna of the alpine regions of New Guinea. Our expedition consisted of three men: Dr. A. L. Rand, who collected birds; Mr. L. J. Brass, collector of plants; and myself, the mammal collector. As it was necessary to give all our time to collecting, we obtained Mr. C. J. Adamson to run the transport for us and also to supply us with mules. He was the only person in the Territory of Papua able to supply these animals.

In order to establish our first base camp at Baroka it was necessary to go to Yule Island, 60 miles west of Port Moresby, and then travel by launch up the Bioto River. This camp belonged to Mr. Adamson and was located on a hill overlooking an immense swamp about an hour's walk from the head of navigation.

Mr. Brass preceded us two days inland to a place called Diene to wait until the second trip of the mules to go farther. Dr. Rand and I did not start until the 28th of April, having been delayed a month through lack of carriers. And when we did start, we had only two house boys and six carriers besides the ten pack animals.

The first half of the first day was over open savanna country until it joined the automobile road between Kubuna and the mission base station of Aropokina. The trail, as is usual in Papua, followed the ridge crests. For the last two hours the road cut through heavy rain forests where the air was like that of a furnace as the thick woods cut out any breeze and the humid atmosphere made travel very disagreeable. This stage was undoubtedly the most tiring because we were either exhausted from the long trip into the mountains or out of training at the start. The deep river at Kubuna, however, afforded a pleasant and refreshing swim.

From here the mission road continued for an hour to a station called Ikaki. As yet, this is the farthest inland one can reach by automobile.

From this point the trail was the narrowest kind of channel bordered by heavy brush. The ground was corduroyed by the mules always keeping in step. This made walking here very unpleasant as the moment the mules stopped one slipped off these ridges into the mud holes which were sometimes half way up to one's knees.

This time we had no houses to sleep in and had to erect flies and tents for our boys. But the weather was good and we were not inconvenienced.

The next day a mishap occurred after an hour of fairly lively travelling. One of our horses slipped off the trail. He descended about 100 ft. and landed on his back. Fortunately he was carrying only bedding and had a soft fall.

On this day we had our first mild test of Papua's ups and downs. It was when we arrived at the edge of the valley above Iakaruna.[1] From this point we could see the mission station of Dilava. We could not have been more than two or at the most three miles away, as we could plainly see and hear the children running about in the yard, but still it took an hour and three-quarters before even the first of our party arrived there. We were well received and continued another hour to Matsika which is the government rest house.

The next day, after a slight rise along a very precipitous slope, we descended to Deva Deva. The following day we crossed the Kea River and climbed up to Mafulu where we stopped to deliver mail and talk with the mission. From there we went on to the government rest house at Bella Vista.

The next day was very fine and we had fairly level going over a good trail. We passed the mission station of Fane from which we obtained a fine view of Mondo and also a nice view down the valley. At Mondo we were taken in by the patrol officer whom we found to be most hospitable. He made our stay exceedingly pleasant.

We rested next day as our carriers had straggled in very foot-sore. One of our horses was also too lame to go any farther that trip. Our day of rest was spent playing cricket, quite strenuous at 6000 ft.

The next day we continued with extra carriers for Mt. Tafa, the highest camp on the route. This was a very long day, seven hours, and we were caught in the rain an hour and a half short of camp. Consequently, all arrived very cold and very miserable. Also the rest house here was a mission station intended for only one person and we were five Europeans.

[1] Iakaruna, pronounced "Yak-a-roo-na."

The last day was the most pleasant for me. Up to this time I had helped with the mules. Now I went ahead with the carriers. And as this was their final day, they travelled much faster than usual.

We arrived at Ononge just as church was coming out and were met by hordes of natives, most of whom were singing. Father Dubuy, in charge of the mission station, kindly offered to put us up. The offer was accepted as it gave our boys a complete rest. We found Father Dubuy's company extremely enjoyable.

We returned about an hour back towards Mt. Tafa and built a camp. Here six weeks were spent during which time the mules returned to the coast and Mr. Brass succeeded in getting carriers and joining us.

On June 5th Mr. Adamson arrived from the coast. It was decided that we had enough supplies to make a try for Mt. Albert Edward. Accordingly, we all descended to Ononge on the 6th. Mr. Adamson and I left Ononge on the 7th with mountain carriers, while Messrs. Brass and Rand waited in order to give our sixteen signed-on carriers a needed rest.

At Urunu, where we were to change carriers, we found a grand circus as both the carriers that had accompanied us and the new carriers were all clamoring at the same time for food and pay.

Eventually we got them paid and fed but this did not entirely satisfy them. About 4 o'clock most of them cleared out and by the following morning we had only twelve left. They were probably worried about the cold at the high altitudes and the unpromising look of the weather.

With the remaining twelve we succeeded in moving in three hours to the edge of the heavy forest. At this camp we had quite a striking example of the portability of the natives' wardrobe. As a particular favor I had given a native an empty match box of the metal type and a loin cloth. The latter he promptly folded and tucked into the match box. When worn, the loin cloth was his sole raiment.

Contrary to expectations, we obtained a lot of food here. The next day was spent in buying and in waiting for Rand, who got in about noon.

The next day we started up the main range with our carriers. The trail, after making two steep descents, continued up very

steeply; in fact, none of the trail was much flatter than 30 degrees except in very few spots. This stage and possibly the next were undoubtedly the worst on our whole trip as one slipped continually on steep wet clay.

Finally, at about 12.30, we reached the top and made camp in the tree-fern country approaching Murray Pass. The last of our carriers, however, did not get in until 1.30. These were shortly followed by mountain boys who had come to camp soon after we had left and were sent on to us. I started down again with the carriers about 3 o'clock and did not get in until one hour after dark.

The last hour was extremely arduous as it was over fallen logs. The correct trail followed the tops of these logs and it was impossible for even the natives to walk over them in the dark. Consequently we had to walk alongside them.

The next day everything appeared to be all right at our bottom camp and our head boy could easily manage the remaining loads. I went up to our top camp where I found we had some fifty carriers that had come up from the Kuamu village in the opposite valley.

This required that one of us return immediately to our bottom camp in order to inform our head boy to bring up as much food as he could instead of leaving it down there.

The next day Mr. Brass and I started for our highest camp with our mountain carriers. It was a arduous day travelling at absolute top speed for an hour, resting an hour, travelling for another hour, resting for an hour, and then travelling for a third hour.

The next day I went out with the chief of the Kuamu village, whose tribe was carrying for us, and tried to get a pig but was unsuccessful. We made camp at the same place that had been occupied by a patrol officer who had made the ascent of the mountain a short while previously.

This camp was situated, altitude 12,073 ft., in a pocket surrounded by the low scrubby forest of the top of the range. We found the top of the range to be a rolling plateau supported here and there with remnants of forest which was extremely stunted and heavily moss-covered. There were a few crevices and small grottoes. The rock of the country was schist with occasional quartz veins.

During this time we made two ascents of Mt. Albert Edward, once during the first part of our stay and a second time just before

we left. Neither time were we able to get any sort of a view. The actual top is rock, steeply inclined.

Once or twice towards evening we had a fine view of the north coast from our camp which was very inspiring. One got a wonderful idea of the up-and-down character of the country and the steep valleys.

Our next camp was back at Murray Pass where we gained the top of the main range. We could see the police at the station of Mondo very easily from here with a pair of glasses. But the trip to Mondo was a very strenuous one. The trip could be made in the forced marches, as used by the government, in four days but for the average traveller it would be more likely a week's travelling. From the Murray Pass camp we worked slowly back out towards the coast, collecting at various camps on the way, and did not get out to the coast until Christmas. In fact, we wound up this trip the day before Christmas.

If one is looking for a good climb, I would suggest Mount Yule. This is a very precipitous rock mountain, the base of which can be approached with mules, therefore relieving the necessity of using carriers more than one day. And I am sure that after the route up the mountain were found, it could be done in one day from the base camp.

It has been attempted twice, both times by men inexperienced in mountain climbing. (They were active men used to walking but not to difficult rock work.) The mountain would not be an easy climb but I think it a possible one. Especially from the northeast, although this looks to be the most difficult.

The southeast, which is the longest, would be too long to make in one day from the highest point at which one could get natives. There is great superstition about this mountain and the natives will not go very high on it. Therefore one would have to count on carrying his own food. This would not be very pleasant at elevations 6000 ft. as the weather would be too hot.

Kilimanjaro and Other African Climbs

HENRY S. HALL, JR.

ABOUT fifteen hours south of the rugged island of Madeira, on the voyage from England to Cape Town, we passed at night the Peak of Teneriffe, rising over 12,000 ft. from the sea, a dormant volcano, rather lovely under the summer moon. Only one other passenger had troubled to rise at 2 A.M. to take full advantage of the view of the passing Canaries, but we felt well rewarded. The moonlight surrendered to a brilliant golden sunrise behind Teneriffe which was in view altogether about seven hours.

On July 1st, twelve days later, we again saw land as the winter sun rose at twenty minutes of eight behind Cape Town's Table Mountain; and by lunch time I was allowing my wife to eat my share at the restaurant on top of the mountain, while I took full advantage of the brief hour allotted to see as much as possible of the top of this curious 3500-ft. sandstone playground of the ardent members of the Mountain Club of South Africa. Up its steep sides, rising almost directly behind the city, there are well over one hundred recognized routes, ranking from an easy rock climb to the almost impossible, the actual climbing beginning at something over 2000 ft., after half an hour's scramble above the automobile road.

Three days later, as we passed through the Hex River Mountains by rail, the snow was down to about 4500 ft., but in the much higher and drier Drakensberg on July 9th there were only traces of snow at 10,500 ft. The Drakensberg is less a true mountain range than a huge escarpment forming, along its highest section, the boundary between the native Protectorate of Basutuland and the province of Natal. The climbing is both difficult and dangerous. The routes are either up the face of the escarpment or on rock towers slightly detached from the main mass. I spent a night in the well-built stone hut recently erected by the Natal Mountain Club near the edge of the plateau, at 10,500 ft., on what is called Mont-aux-Sources, and the next morning walked for some miles along the edge of the 6000-ft. escarpment for a view as far south as Cathkin Peak, 40 miles away, something over 11,000 ft., and

reputedly the highest point in South Africa. The Hostel, an attractive inn, at the foot of the escarpment (about 4800 ft.) is reached by road in less than three hours from Ladysmith, and is used as a base for many of the climbs in this district.

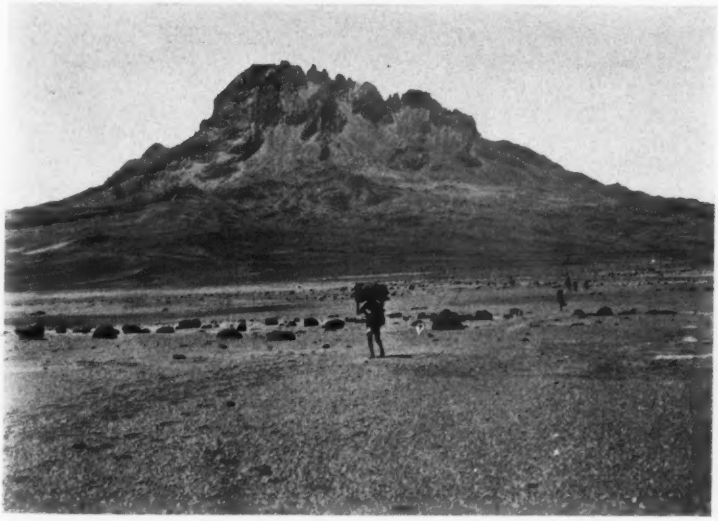
In Nyasaland, about 16 degrees south of the equator, there are also mountains, one, Mlanje, rising 7000 ft. above its base to an altitude of 9800 ft. This I tried to climb in one very long day, which included an automobile round trip of 160 miles from Zomba and an early start, but a grass fire on the summit plateau at about 7000 ft. blocked the shortest route, even by which a night is nearly always required for the complete ascent.

August 1st saw us at Merangu (4500 ft.), the starting point for the ascent of Kilimanjaro, the highest mountain in Africa. I had previously been in touch with Mr. P. Ungerer of Moshi, the secretary of the Mountain Club of East Africa, who very kindly met us at the airport and, after taking us to call on Major A. E. Perkins, president of the club, drove us to Merangu where at the Teachers' Training School (a German Lutheran Mission) we met the Rev. R. Reusch, in charge of the mission, and the leading authority on Kilimanjaro, as well as, by pre-arrangement, Mr. E. W. D. Crawshaw of Tanga, an official of the Tanganyika government, on vacation, who also wished to make the climb.

Kilimanjaro has two summits: an extinct cone, Kibo (19,718 ft.), and the older, Mawenzi (17,290 ft.)[1] a few miles to the east, the two being connected by a broad saddle, about 14,500 ft. high at its lowest point. Hans Meyer and Purtscheller reached the summit of Kibo on October 5th, 1889, and ten days later climbed the more difficult Mawenzi to one of its pinnacles, Purtscheller Peak (17,191 ft.). The highest pinnacle, Hans Meyer Peak (17,290 ft.), was reached by Oehler and Klute on July 29th, 1912. Only three subsequent ascents were made until 1925, and in 1927 Miss Sheila MacDonald was the first woman to reach the summits of both Kibo and Mawenzi, with W. C. West of Cape Town. Dr. Reusch made his first ascent of Kibo in 1926 and has since been up twenty-six times, at various seasons of the year, and has made numerous ascents of Mawenzi, as well, and discovered in June, 1935, a deep

[1] Neither of the peaks has been accurately triangulated. Hans Meyer's aneroid showed 19,718 ft., and other figures down to 19,331 ft. have been arrived at. I am inclined to favor Meyer's approximate determination, though my aneroid misbehaved rather badly above the upper hut.

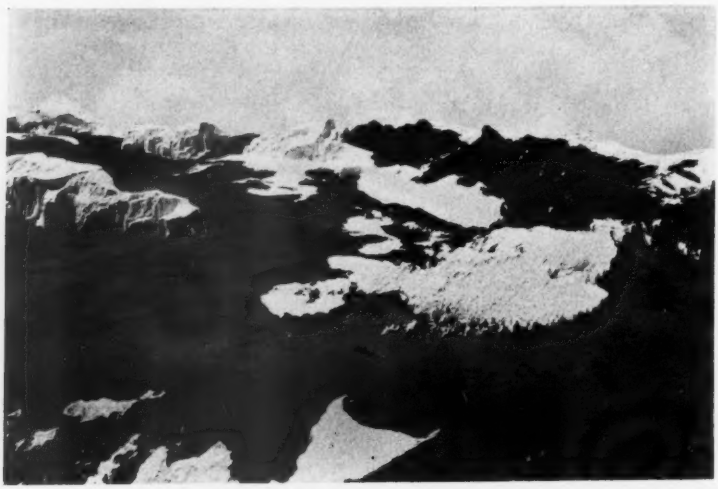
PORTERS LEAVING PIETERS HUT



MAWENZI FROM 14,500 FT.

Photos, H. S. Hall, Jr.

KIBO FROM 14,700 FT., NEAR MAWENZI
Summit is behind snow at left. Route lies directly up center of cone, entering crater at right of Gillman's Point (center)



VIEW N. E. ACROSS CRATER
From Kaiser Wilhelm Spitze (19,718 ft.)

Photos, H. S. Hall, Jr.

crater east of and near Mawenzi. Altitude, and sometimes weather, turns back, short of their goal, a large proportion of the fairly numerous parties attempting Kibo.

There are three huts, the Bismarck at 8900 ft., the Pieters at 12,000 ft., and the new Kibo Hut at about 15,800 ft., near which until recently an unpleasant night had to be spent in lava caves, before continuing the ascent.

In 1929 the newly formed Mountain Club of East Africa took over the huts from the government and is now responsible for their upkeep, a work in which Dr. Reusch especially interests himself. At Merangu we stayed at the comfortable Kibo Hotel run by Herr Kloss and his wife, while Dr. Reusch assembled porters, and we bought food at Moshi, and locally.

On the morning of August 3rd the party consisting of Mrs. Hall, Crawshaw, myself, Johannes, the native guide, and ten porters took leave of Dr. and Mrs. Reusch at the Mission. By an easy gradient the path leads past fields and native huts until the forest is reached at about 7000 ft. In cool mist we walked by the elephant trails through dense semi-tropical forest until mid-afternoon when, after only four hours of actual travel, Bismarck Hut came into view. Here were waiting two ladies whom Dr. Reusch had told us hoped to make the ascent—Miss Erika Burkhardt, of Munich, and Miss Dumas from England. We soon agreed to join forces. Straw mattresses at all the huts, and blankets which our porters carried made the nights comfortable, after meals which we cooked over wood-burning stoves, the wood being carried by our porters to the two upper huts, and water being carried from Pieters to Kibo Hut.

Still in mist and rain, our augmented party of five Europeans and eighteen natives started for Pieters Hut at nine the next morning. Dense forest gave way at 10,000 ft. to giant heather, and a few hundred feet higher there remained only grass which continues to 14,000 ft. Rising out of the rain and mist into bright sunshine we came in four hours to Pieters Hut, another 10 miles, where there is good water and a fairly extensive view to the south. The minimum temperature overnight at Bismarck in the rain had been 36°, and at Pieters in clear weather was 27°, at Kibo but 26°, and just before sunrise at 18,000 ft. on the slope of Kibo was 22°, with a keen north wind; all this at three degrees south of the equator.

Mrs. Hall took leave of us the next morning to return with two porters on her donkey to Merangu. At a moderate, steady pace, the better to become acclimated in the increasing altitude, we gained the saddle, which was swept by a cold north wind, rested, and walked on, each at his own pace, to Kibo Hut, again a short march, about 12 miles in four and one-half hours. After telling Johannes, much to his disgust, that we wanted to start at 2 A.M. the next morning, August 6th, we retired early, and except for slight altitude symptoms on the part of all but myself, slept well.

At the appointed hour, under the stars, long before daylight with a candle lantern, we started the final climb. Miss Dumas became rather badly distressed but wouldn't give in. Miss Burkhardt had the least trouble of any of us. Gradually we drew even with Mawenzi and then it sank below us. At 18,000 ft. we climbed only a few minutes at a time, but seldom stopped for longer than was necessary to restore the pulse and breathing to normal. The sun was a welcome relief from the rather biting wind when it reached us. The slope, composed of loose material, became gradually steeper. The edge of the ice-cap came into view when we were only a few hundred feet below it. Rather suddenly at 19,000 ft. a way opened between vertical ice-cliffs on the right and a rocky point on the left, and we walked into the shallow crater floor. We had taken four hours and twenty minutes from the hut, and no one seemed particularly tired, though Miss Dumas came up somewhat behind the others. After eating lightly we set out along the edge of the crater floor toward Kaiser Wilhelm Spitze. The ice formations were unlike anything I had ever seen before. Ice-block glaciers from 100 to 200 ft. thick with vertical sides stood around in a detached array for no apparent reason. They may be the isolated remnants of a once solid ice-cap. Fortunately there was no fresh snow at all on the rock, a frequent cause of exhaustion and defeat at this point.

As we began to climb the side of the crater wall I became unaccountably weak and sleepy, and this feeling increased to such an extent that I soon lay down for a nap. I awoke in fifteen minutes somewhat refreshed. The others had at my suggestion gone on, so I was the last to arrive at the summit at 10 A.M. We had made rather slow work of it, skirting the inner foot of the crater wall, and finally working up to the highest point of its broad south-

westerly crest. All view below 15,000 ft. was cut off by a sea of clouds. The summit was dry rock between ice-cap and crater wall. A considerable glacier flows down the westerly side of the mountain, as yet only partially explored. The north and east sides of the mountain are so dry that there is scarcely grazing for the native cattle. The whole south slope below, 10,000 ft., is well watered and highly fertile.

After well over an hour in bright sun on the summit, during which all pulses were found to be about 20 or 25 above normal, we started slowly down at 11.30 A.M. From the gap in the crater we walked or ran at varying speeds down to Kibo Hut, stopped an hour for a light meal, and continued at a brisk pace to Pieters Hut, which we reached just at dusk, about 6 P.M. At supper we were surprised to find ourselves comparatively fresh after the ascent of 4000 ft., and descent of 8000 ft., a total distance of 20 miles in the previous sixteen hours. The day following in lovely weather we finished the remaining 20 miles to Merangu in seven hours. The total distance for the climb is 72 miles, and we were out five days and four nights. A party in first class condition might do the whole climb and back in three days, certainly in four, from Merangu, but we were told that the average time is six or seven days, because of the great range of climate from the sub-tropical at the base to the alpine or sub-arctic on top.

As we motored around the west side of Kilimanjaro, northward, to Nairobi, glaciers were visible extending several thousand feet down its side, and on our left rose Meru above the 3000-ft. plains to an altitude of just under 15,000 ft., though below the line of permanent snow and ice.

Mt. Kenya (17,040 ft.), its summit 10 miles south of the equator, came out of the clouds for two hours as we drove past its west side on the 6000-7000-ft. plateau. The last 1000 ft., a volcanic plug, is a very difficult climb, and has been ascended but five times altogether. Sir Halford Mackinder with two Swiss guides made the first ascent of Batian, the higher of the twin peaks, in 1899. Eric Shipton with P. Wyn Harris climbed both Batian and Nelion (first ascent) in January, 1929, repeating the climb two days later with G. A. Sommerfelt. In December, 1929, Shipton and R. E. G. Russell climbed both peaks by the same route, and in August, 1930, Shipton and H. W. Tillman made the first traverse of the twin

peaks. The rock is difficult and generally ice-covered, the weather is treacherous, and the camping conditions often unpleasant because of wind, cold, storm and lack of fuel.

Ruwenzori obliged us with two perfect views of pink sunrises on the snows, from Fort Portal, followed by thunderstorms. It is said to rain or snow 350 days of the year on the highest part of this mountain mass which is some 50 miles long north and south, by 20 wide, with its highest summit, Margherita Peak (16,794 ft.), only 20 miles north of the equator. The highest peaks are approached both from Fort Portal in Uganda (Abruzzi's route), and from Beni in Belgian Congo. The highest summits were climbed by the Abruzzi expedition in 1906, and the Belgian expedition led by Comte de Grunne in 1932. Dr. Noel Humphreys between 1926 and 1932 climbed some of the peaks, explored new parts of the range, and flew over it several times. The surrounding country averages 2000-4000 ft. in altitude and the mountains rise almost without foothills, but the actual summits are disappointing when seen from the plains, being proportionately small, and almost hidden by the intervening bulky shoulders.

The principal Virunga volcanoes, eight in number and ranging in height from 10,013 to 14,783 ft., in Parc National Albert, Belgian Congo, at the northern end of Lake Kivu were seen only through the bluish haze of grass fire smoke during our four days in the park. Coming from Kabale in Uganda, we drove to Askole and thence by a road opened only two months before, past Muhuvura (13,547 ft.), the easternmost cone, to Goma on Lake Kivu. Mikeno (14,370 ft.) in the gorilla reserve is the only one offering any climbing difficulties, which are due mostly to steep, rotten moss-covered wet rock, sometimes frozen near the top. With two Americans, Armand Denis and LeRoy Phelps, whom I met by chance at Goma, I climbed one of the two active volcanoes, Niragongo (11,250 ft.) on August 22nd, starting at 6000 ft. and spending the previous night in camp with the party in the bush forest at about 9500 ft. The chief interest lay in making a circuit of the vertical walled crater, about four miles around, and nearly 2000 ft. deep. There were really three craters, one inside the other. From vents in the lowest, issued volumes of sulphurous smoke which was partly pouring over the western rim as I walked around, giving me a rather unpleasant half hour. The vegetation on that side was withered for several thousand feet below the crater edge.

On the opposite side small bushes came up to the very outer edge of the narrow rim.

The next day I walked from a point some miles north of Goma on the road to Rutschuru, up through the magnificent tropical forest on Mikeno to the saddle (10,300 ft.) between it and Karissimbi. Here is where Carl Akeley died in November, 1926, and lies buried in the very heart of his final work, the abode of the gorilla. Col. Hoier, an official of the park, was superintending the construction of a good-sized cabin, to be used to house scientific expeditions, and welcomed me cordially at luncheon. This is the starting point for the ascents of Mikeno and Karissimbi, but permission must be secured from the park authorities in advance to come even this far into the gorilla reserve.

In the vicinity of Beni a thick haze obscured all view of Ruwenzori from the west.

The last considerable mountains seen in Africa were probably those near the western tip of Abyssinia on a clear day as we flew north through the Sudan on September 3rd. Between Athens and Brindisi on the 6th we flew at 10,000 ft. over the 6000-8000-ft. mountains of western Greece, dotted here and there with tiny villages and monasteries perched on the steepest ridges, and connected with the outside world by nothing more than narrow foot or mule paths. Next day, a few breaths of the scented evening air of the Rhone Valley from the train window brought on an almost irresistible desire to jump off and dash up into the valleys and peaks of the Alps.

Principal References

Concerning the South African mountains (including Table Mountain and the Drakensberg), *The Journal of the Mountain Club of South Africa,* published annually at Cape Town, is informative.

For Kilimanjaro, Hans Meyer's book, *East African Glaciers,* 1891, is the record of the first ascent and contains much scientific information as does H. H. Johnston's book, *The Kilma-Njaro Expedition,* 1886.

For Mt. Kenya there is E. A. T. Dutton's book, *Kenya Mountain,* 1930.

For Ruwenzori, De Filippi's book, *Ruwenzori, An Account of the Expedition of H. R. H., The Duke of the Abruzzi,* 1908; also a special issue of *Revue Alpine* published by Club Alpin Belge, Brussels, 1932, on the work of the 1932 Belgian Scientific (and mountaineering) Expedition.

The 1932 (first and, to date, only) issue of *The Ice-Cap,* the journal of the Mountain Club of East Africa, headquarters Moshi, contains articles on, and lists of, first and other ascents of Kilimanjaro, Kenya, Ruwenzori and other Central African mountains, and a valuable bibliography on the same.

The *Alpine Journal* (London) and the *Geographical Journal* (London) both contain numerous articles on the mountains of Africa; Dr. Noel Humphrey's recent articles in *G. J.* on his several trips into the Ruwenzori, being particularly valuable.

The Cascade Range of Northern Washington

HERMANN F. ULRICHS

THE general conception of the Cascade Range is that of a series of broken-down, snow-covered volcanic cones fairly distantly spaced and surrounded and linked together by a simple chain of uneventful, rolling, forested ranges of low elevation, with here and there a secondary, relatively low and unimportant peak to break the general monotony. While this is quite accurate on the whole for the range in California, Oregon and the southern half of Washington, it is a neither just, accurate nor sufficient description for that part lying roughly between Mt. Rainier and the International Boundary in the northern half of Washington. When this region is better developed and known, I believe that it will be recognized as the most beautiful, as well as the most truly alpine range in the United States, especially that section lying to the west, north and northeast of Lake Chelan. At present the greater part is in a stage of virgin wilderness, probably the wildest and least penetrated stronghold of uncivilized nature in the country. Several large areas have been recently set aside as primitive regions, so that future generations can see at first hand what the wilderness was like before man commenced his often very doubtful improvements. Before dealing with this almost completely unknown section (even in Washington), some general remarks on the Cascades as a whole should be pertinent.

The junction of the Sierra Nevada Range of California with the Cascades is indefinite. It is difficult to know where one ceases and the other begins, but it is probably a short distance to the south of Mt. Lassen (10,437 ft.). Between Mt. Lassen and Mt. Rainier the character of the range is quite uniform—a simple divide averaging 50-60 miles in width, composed of about a dozen outstanding volcanic cones and remnants from about 7700 ft. to twice that height, fairly equally spaced and connected by forested ridges maintaining a general level of 5000-6000 ft., with an occasional bold rock outcrop somewhat higher. In California, Mt. Shasta (14,380 ft.); in Oregon, Mt. Jefferson (10,523 ft.), Mt. Hood (11,225 ft.) and the Three Sisters group (10,352 ft.), considered to be the remnants of a much larger volcano known as Mt. Multonomah;

MAIN DIVIDE
Unnamed country at head of E. fork of Foss River

WEST SLOPE
Mt. Shuksan (9038 ft.) from Table Mt.

Photos, H. F. Ulrichs

MAIN DIVIDE
N. W. peak of Mt. Black

EAST SLOPE
Summit ridge of Mt. Silver Star

Photos, H. F. Ulrichs

and in Washington, Mt. St. Helens (9671 ft.), Adams (12,307 ft.) and Rainier (14,408 ft.) are perpetually snow-capped and support living glaciers. These phenomena become much more pronounced in the northern outposts of the group.

The most distinctively differentiating trait of the Cascades from other mountain ranges is this stately and nobly proportioned procession of snowy summits, serene and contemplative, which give a peculiarly personal and poetic charm to the landscape. Wherever the climber goes, he is sure to see in some direction one, if not several, of these lonely sentinels, often floating like a vision or a mirage above the lower mists, strangely unreal and ethereal and by their loftiness dwarfing the surrounding country. Though actually the youngest of our mountains, the impression given by their tranquil repose and ample flowing contours is that of tremendous antiquity. Other mountains seem young and turbulent by comparison.

North of Mt. Rainier to the International Boundary, the range undergoes a decided transformation and assumes a dual character. Here occurs the climax of interest, variety and scenic grandeur of the entire range. To the west of the main divide are still two more ice-clad volcanoes: Glacier Peak (10,436 ft.) and Mt. Baker (10,870 ft.). Both are extraordinarily beautiful in form and surrounded by some of the most superb forest in the world. In addition to this type of Cascade scenery is associated the more familiar alpine type of other ranges. The main divide, with its lateral divides and parallel secondary ranges, forms a very rugged and complex system of mountains, which attains a maximum width of 125-150 miles south of Mt. Baker and a general elevation of 8000-9000 ft. In the volcanoes and the southern part of the range, masses of pumice, scoria and andesitic types of rock predominate, highly unreliable for climbing purposes when the angle becomes at all steep; while the rocks of the north are predominantly schists and granites with some slate and are consequently much more safe and reliable. The doubled width of the range, coupled with the entirely different climatic conditions on each side, tend to make the east slope a quite contrasting world to the west, so much so as to make it seem another range.

In Oregon the volcanoes are found on the divide; in Washington, with the exception of Mt. Adams, they group themselves to the west of the main divide and so are integral components of the west-

ern slope. The next most distinctive trait of this slope is probably the dense forest that clothes the valleys and lower slopes and ridges. To penetrate these vast and silent reaches is to enter a world steeped in a perpetual cathedral twilight of dim gold and green half-lights. Great pillar-like firs, 250-300 ft. high, abound, with spruce and cedar almost rivalling them in size. The undergrowth, particularly in the valley bottoms, is tropical in its luxuriance and impenetrability. Devil's Club abounds; but the greatest obstacles are the huge fallen trees, which decay only slowly and often support several generations of young trees upon their prostrate sides. The fern and moss life is very abundant, but not the floral. Most of the flowers are white, with a few essays in pink or allied shades, but no showy varieties. The scarcity of bird life makes these forests seem extraordinarily silent. One bird seems quite common; I have not encountered anyone who knows what it is. It has a little song of one tone repeated at intervals over and over, rather like the sound that might be produced by the striking of a small steel bar, and has a cool sound which for some inexplicable reason I always associate with the drip of clear spring water. The pitch varies with each bird. This succession of delicate and light sounds, drifting tenuously down through the dense foliage almost seems to deepen the silence and in a magical way to epitomize the elusive spirit of the forest. Only occasionally does the forest part to give a momentary view up some deep, precipitous side valley, with perhaps the gleam of a waterfall or distant sharp snowy crest far above to carry the eyes upward. The rest of the time the traveller moves in a world from which all distance has been annihilated. In bad weather, these forests become dark and sombre; the clouds shred themselves on the tree tops and the gloom makes the silence even more profound.

The valleys of the western slope are deep with steep walls, and are in the mature cycle, stream erosion having nearly perfected its work. They are characterized by low gradients: one-half per cent and even less, to within a few miles of the stream sources. From this, it follows that no one should be led to infer that the Cascade peaks are very small ones because their absolute elevation is not great. A 7000-ft. peak becomes a very respectable mountain in height when one commences to climb from the elevation of 500 ft. above sea level. In fact, the range in this section gives an impres-

sion of much greater height, relief and magnitude than do the peaks of the Sierra and the Rockies. The town of Glacier on the North Fork of the Nooksack River at the northwest base of Mt. Baker is 881 ft. above sea level. The summit of the mountain, hardly 10 miles distant by air line, rises 10,000 ft. above this in one unbroken sweep. Mt. Eldorado (8875 ft.) rises 7200 ft. in a little over two miles air line from the Cascade River at its south base; the west face may show an even greater differential elevation in still less distance. Similar statistics might be multiplied indefinitely; the generalization is that 6000 to 7000 ft. is a very common figure for the vertical relief of the peaks, many of which show magnificent cliff formations for thousands of feet.

The side valleys are very steep; the streams impetuous torrents, carving deep gorges in their precipitate descent to the main river. The forest covers the slopes and ridges to between 4000 and 5000 ft. elevation; the size of the trees gradually decreases and more alpine species replace those of the valleys, but the covering remains very dense. Near the heart of the range great masses of "boiler plate" glaciation are exposed on the side walls. Above 5000 ft., the subalpine zone begins and under favorable conditions extends 1000 ft. higher, chiefly in the form of steeply hanging meadows interspersed with benches containing the inevitable heather-bordered pools that are such an attractive feature of the Cascade scenery. The ridges become sharp and narrow, deeply serrated with extraordinary spire and pinnacle forms, very precipitously walled and for the most part anything but straightforward or easy routes for travel, as they force most of the climbing to be done by couloirs and faces. Above 6000 ft., perpetual snow begins to be plentiful and hanging glaciers are always to be found on peaks of 7000 ft. or more elevation.

The peaks range from 7000 to 9000 ft.; their most common form is that of a sharp, jagged wave-crest of rock, slender in profile and precipitous-walled. Lateral ridges are usually abortive. The rock is often glassy in character, not overly supplied with holds, and somewhat slippery for nailed boots, which are indispensable for the steep glaciers and snow fingers. The frequent torrential streams, difficult and dangerous to ford; the steep-walled valleys, highly serrated ridges and precipitous side gorges; the thickets of devil's club and thorny berry bushes; the uncertain footing

of the treacherous moss and rotting vegetation, above all the interminable fallen trees over which one has to haul oneself laboriously to peer into the uncertain depths of the black hole masked by undergrowth on the other side: these are the factors which make progress slow, arduous and discouraging. Anyone who has ever attempted to force his way backpacking through these valleys without trail, intent on reaching some of the less accessible peaks, will not easily forget that struggle. This will explain why large areas, as for example that lying between the Cascade and Suiattle Rivers, two important southerly tributaries of the Skagit River, are filled with peaks and lakes for the most part unnamed and unvisited.

To cross to the east slope is to experience a complete change of scenery and climate. The deep, moist, luxuriantly carpeted forests of the west change to much more dry and open forests in which pines predominate and which support an abundant floral and bird-life. In early summer, grass grows abundantly in the sweet-smelling open spaces between the trees, its silken sheen glinting in the sunlight as the wind stirs it into undulating ripples. The streams are numerous and very clear, so that camping is particularly pleasant, especially as the rainfall is far less than on the west slope. The same deep dissection is still apparent, though perhaps a little less, since the streams have had a higher base level to cut down to; namely, the Columbia River. From the abrupt terminus of the south ridge of Mt. Goode (9300 ft.) on the junction of Bridge Creek and the Stehekin River, it is a rise of 7200 ft. to the final summit pinnacle. The valleys are even more steeply V-shaped, more rock is exposed with consequently less forest covering. Great masses of rock cliff and wall make the problem of climbing out of these valleys difficult. As the main divide is approached, they become equally, if not even more impenetrable than their relatives on the west slope, but the character of the undergrowth is entirely different. Large avalanches are common on this side and in their track arises a dense thicket of alder, rubus and ceanothus. Only an occasional trapper has ever ventured into the heads of some of these valleys, and then only when deep winter snow lay on the ground.

The subalpine zone is much more developed on the eastern slope, taking possession of extensive sections on the main divide

north of Rainy Pass, as well as the secondary divides further east. This country is a veritable Eden, supporting an extremely rich profusion of alpine flowers; the climber literally wades through a rainbow-hued carpet of them. The trees, grouped into striking designs, make a natural park of the landscape; countless clear little waterfalls and cascades, dashing from the upper snows, water this delightful terrain. The climber can saunter by the hour through this small enchanted country of intimate beauty, while always in the distance snowy ranges glow in the soft light. There is something different about the light in the Cascades from any other range of my experience; perhaps because it is so close to the ocean and has a relatively moist atmosphere. The hard, diamond-clear light of the inland ranges is replaced by a light equally clear, but so softened that the mountains have almost a dream-like quality.

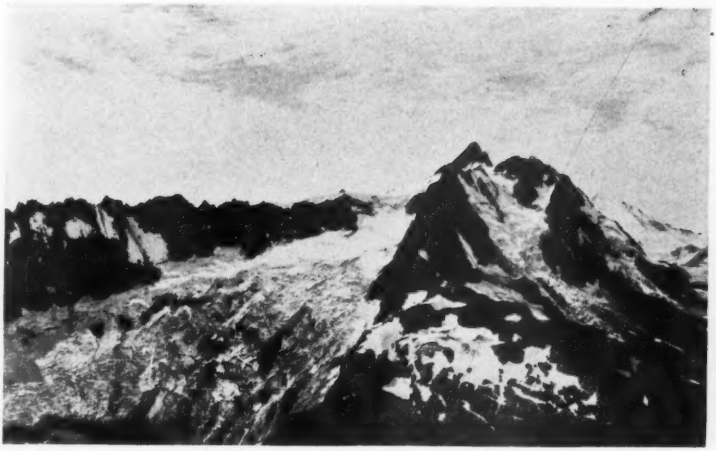
Some of the secondary ranges of the east slope are higher than the main divide in this latitude; as, for example, the mountains lying at the sources of the Pasayten, Similkameen Rivers and the northern tributaries of the Methow River. The aridity of the climate is in proportion to the distance from the main divide and those farther east show the typical characteristics of inland ranges. There is only one peak east of the divide on which there exists a living glacier: Mt. Silver Star (8903 ft.). To me, with the exception of the country, rugged and startling, surrounding this peak, which is quite close to the divide, these ranges seem desolate and uninteresting. They average between 8000 to 9000 ft. and are little known. In 1933 we made a backpacking expedition into the heart of what appeared on the map to be the most rugged section: the country at the head of Lost River. We made the first ascent of Mt. Carru (8600 ft.) but the general reaction was one of disappointment. The cool forests and snowy ranges of the divide, with their luxuriant flower gardens and innumerable rushing streams, spoil one for these semi-arid, comparatively barren ranges.

Another high secondary range (for the Cascades) exists at the head of the Chiwawa River, due east of Glacier Peak. Rumors of 9000-ft. peaks drew us there for exploration and several new first ascents were made: Mt. Fernow (9100 ft.), Mt. Maude (9110 ft.), and the prominent dentated tower between Mt. Maude

and Seven Fingered Jack. The second ascent was made of the latter peak. Various pinnacles of Seven Fingered Jack should prove interesting climbing, although the highest is very easily reached and does not offer interesting climbing. Mt. Maude was climbed by a steep but straightforward 2000-ft. couloir on the west face. On the summit billowing clouds veiled all but the eastern range from us. We were congratulating ourselves on a good climb when the cloud obligingly moved and disclosed a painfully easy but less accessible route (reminding me of Mt. Hector) up the south ridge; one apparently much in favor with goats. As the weather was becoming more threatening, we decided to make time by descending this way. We later regretted this: the quantity of loose rock and scree that cascaded down the couloir leading from the ridge to the basin at the foot of the west face was incredible and offered some nasty climbing. More than once we sighed for the firm clean rocks of the couloir of ascent.

The climb of Silver Star proved to be one of the most interesting I have made in the Cascades, as well as a first ascent. As in the previous case, we managed to find a difficult route of ascent and an easy one for descent, though the procedure varied here. A full day's drive from Seattle and an overfull day of backpacking over a trail poorly marked and rough and undergrown brought us after dark into camp directly under the south face at the last timber. There was no shelter, but the night appeared fine and we turned into our sleeping bags with hopes of an early start in the morning. During the night the weather changed with the startling suddenness characteristic of the Cascades. A violent thunderstorm was followed by a fall of several inches of heavy wet snow. There is nothing better than this type of snow to demonstrate that sleeping bags are only partially waterproof. After a most uncomfortable night, spent in envying the warmth and dryness of the desert, we arose near dawn, when the storm gave signs of ceasing. The sun came out while we were still drying each article of clothing over a fire which possessed the only enthusiasm in the party. A few hours' sleep, and we woke to find it a bright day, the snow almost melted in the meadow: stock in the climbing venture zoomed immediately.

From our limited, foreshortened view the east peak looked definitely the highest. The ridges leading to it from the west and



WEST SLOPE
N. and E. faces of Mt. Shuksan

MAIN DIVIDE
Between Mt. Boston and Mt. Buckner

Photos, H. F. Ulrichs

N. WALL OF MT. WHITEHORSE (6820 FT.)

WEST SLOPE
Mt. Baker (10,870 ft.) from Table Mt.

Photos, H. F. Ulrichs

east looked so serrated as to be hopeless in view of the limited time remaining. The best hope was to climb the southern face to a rib which descended about halfway directly from the peak, and follow this. For 2500 ft. this face is one clean, very steep thrust of firm granite, the lower sections of which are highly glaciated. By noon we were under way, but several hours later found us still trying to make lodgement on the peak. I have never seen the actual foot of a mountain so inhospitable. We tried crack after crack and a few very narrow chimneys, but constantly ran up against overhangs or slick, holdless slabs and had to descend again. The difficulty of some of these enforced descents was an effective criticism of the feasibility of attempting to force a line farther upward. We retired highly disgruntled and very much annoyed with the mountain. If we had been back in our romper stage, we might have kicked it.

The afternoon was wearing on. After the frigid night, the day was surprisingly warm. We more or less tacitly agreed that it was now too late to make another serious attempt and pretended to devote what was left of the day to photography. I thought it would be interesting to climb toward the southwest ridge and view this spectacular face in profile. After making several hundred feet elevation into the alcove of the junction of the south face with this ridge, I suddenly noticed a promising ledge commencing a diagonal across the face about 300 ft. above us. A new hope sprang up and we began climbing furiously to discover if this was accessible and, if so, whether it would lead in the desired direction. The little distance we could see before an abrupt jutting corner terminated the view looked promising. We set off with a will, but with an unspoken feeling that we ought to appear elaborately indifferent and thus fool the mountain. It worked. The face was more broken here than the slick flat planes of our first attempt. The ledge was not continuous, but by constantly using the ledges formed by the junction of the granite slabs and climbing upward from one likely one to the next, we managed to maintain a fairly steady upward diagonal towards the rib descending from the east summit. Sometimes the ledges were ample; at other times it was like edging along the narrow sill of a skyscraper. Ice and fresh snow on the holds did not add to the security and tended to freeze the fingers unconscionably.

The rib reached, we peered across its crest to the face on the other side and immediately thanked our lucky stars that an attempt had not been made to reach the rib on that side. The rib had appeared practically vertical to our uneasy minds as we approached, but in comparison to this dizzy precipice it looked almost reassuring. Some breathless, straight-up climbing brought us to the final slender spire; but, turning our eyes westward, we saw to our intense dismay another, slightly but unmistakably higher. Connecting it with one peak was a wild-looking knife edge, fragile and highly gashed. The sun was low in the western horizon and the chill of the September evening was setting in, but nothing could deter us now. That spire had to be reached. Without waiting to build a cairn, we set off.

Geoffrey Winthrop Young says in "Mountaincraft" that if a climber has not enough breath to whistle a complete musical phrase as he climbs, he is climbing too fast. We thought we had been climbing rapidly before, but now we seemed to be trying to fly. Neither of us could have wistled more than a few pitches at the most. Off went the rope—it made progress too slow. The slabs were wonderfully firm, but smooth, and friction had largely to be depended upon. *A cheval,* back and knee, scrambling with hands on top and feet frictioning against the vertical surface—anything to make time count. The apparent difficulties yielded in the most unaccountable manner and we went at it more and more exuberantly. By this time, we had agreed that this route was not to be used for a descent; at the worst, we would find a way down the north face to the glacier, descend that to the first timber and sit around a fire all night. The thought was a reassuring alternative.

A deep notch suddenly halted our progress and left us poised uncertainly on the overhanging pinnacle above it. Uncoil the rope and *abseil?* No, it would take too long. The south face of the ridge was impossible. The north face led off with a steep, smooth inclined slab of about 20 ft. which ended in a small ledge. From there it appeared possible to work down and into the base of the notch. Here the technique acquired in early years on banisters and the summer-house roof proved its worth. The simplest method of getting down the slab was to lie back and slide, catching the heels in the ledge below. There was no difficulty—

only the glacier seemed a very great distance below the ledge in case the mark should be overshot. It went with a rush. I looked back with the half-formed thought, "In case we should have to return, just how . . . . ?" but we were in the notch before it was ever finished, certain that the mountain's defenses were exhausted. Some more very exposed climbing—and suddenly we were building the cairn with numb fingers below the vertical knife-edge slab forming the final and indisputable summit of the peak. A wild red sunset was growing dusky in the west and the wind was bitter. This time the promise of an easier descent did not appear painful. The large notch between this and the lower mass that forms a western peak was reached by easy slabs on the north side of the ridge. From here the glacier could be reached; but we still had hopes of getting down the west end of the south face to our camp. In the gathering darkness we found ourselves in a straightforward couloir, which had to be negotiated carefully on account of the loose rock, but which offered no difficulty. Long after dark we stumbled into camp, tired but elated.

Mountain peaks are gregarious. They appear to prefer to group themselves. The Cascades run true to type; group formation is very apparent. North from Mt. Rainier on the main crest, the first group of any importance is found at the sources of the Snoqualmie and Cleelum Rivers. Mt. Daniel (7986 ft.) is the highest summit; there are other rugged and precipitous peaks, as Chimney Rock (7727 ft.) and the probably unclimbed Bear's Breast (7700 ft.) which offer difficult climbing. A few small glaciers exist.

The next group is seen 50 miles straight airline to the north. Between these two, the divide, more than twice that distance with its convolutions, averages 6000 ft. and is chiefly forested or covered with open meadows. Directly east of Glacier Peak, glaciers and rock spires reappear, and in the 50- to 60-mile stretch between Suiattle and Rainy Passes the climax of alpine ruggedness in the range is achieved. For half that distance the divide presents an unbroken and formidable barrier both to east and west, and consists of a complex mass of boldly sculptured peaks, 8000-9000 ft. high. The entire east side is covered with a practically continuous chain of steep, deeply crevassed hanging glaciers, probably larger than is yet realized. This section is quite unknown; most likely

none of the peaks as Mts. Sentinel, Spider, Spire, Dome, Lizard, Agnes, Blue, Magic, LeConte or Johannisberg have ever been ascended. From a distance they do not look easy; not one of the least difficulties is to get into position to make a start. For the 30 miles or so between Suiattle (6000 ft.) and Cascade Passes the range could only be crossed by difficult mountaineering. With the 14,000-ft. peaks of our better known ranges in mind, it is strange to realize that these peaks of a so much more spectacular and formidable appearance only reach such modest elevations.

Between Cascade Pass (5392 ft.) and Rainy Pass (4900 ft.) the highest peaks occur. In this more accessible section several tricky looking unclimbed summits still remain. On the west peak of Mt. Buckner (9080 ft.), we found a surprisingly intact but unprotected record on a piece of photographic wrapping dated August, 1901, left there by a lone climber of the U. S. G. S. Survey, probably on a busman's holiday jaunt. We relieved our feelings by scrambling over to the unvisited and equally high east peak and building a cairn there. Cairns were also found on Black Peak (8990 ft.) and Frisco Peak (7802 ft.), but Mt. Corteo (8200 ft.) and Mt. Booker (8300 ft.) furnished the usual exercise again. On Mt. Goode (9300 ft.), after 7-8 hours' climbing, the last 1000 ft. of which became increasingly difficult, we were beaten back by an impasse perhaps 100-150 ft. below the final summit. This peak has also baffled several other attempts by other climbers. The climb was made from the west in an attempt to reach the deeply serrated south ridge as close as possible to the slender, flame-like summit pinnacles. The east face is a very imposing precipice; the north ridge looks very repellant. The use of pitons seems advisable for the solution of this problem.

Cutthroat Peak (7602 ft.), east of Rainy Pass, proved equally unfriendly. After some hard and baffling climbing, we found ourselves on the west ridge about 100 ft. below the sharp summit spire, staring blankly at a slightly overhanging, quite holdless slab which obviously needed the use of vacuum cups for 40 ft. or more. The other sides of this precipitous pinnacle show no obvious route. The perpendicular spires of the unclimbed Mt. Liberty Bell across the valley look difficult.

The divide makes a short drop and then ascends for a group of peaks averaging 8500 ft. around the head of the west fork of the

Methow River. Mt. Hardy (8200 ft.) and Mt. Azurite (8440 ft.) proved first ascents, but more interesting climbing was found on two prominent unnamed pinnacles directly south of Mebee Pass—especially on the traverse of the southern one. From here to the International Boundary the divide drops and for miles consists of open heather meadows. All the interesting peaks are to be found to the west. The most outstanding group is between Skagit, Baker, and Chilliwack Rivers. This section has been set aside as the Whatcom Primitive Area. The main range is called the Picket Range on account of the array of vertical spires and pinnacles. Only a few of the interesting peaks, Mts. Redoubt, Challenger, Bacon, Pinnacle, Fury, Terror, Despair, Triumph, Hagan and Luna have been climbed. Elevations are not given.

Enough has been said to show that these Northern Cascades are the least exploited mountains left in the United States. Why they have been so consistently ignored is something of a mystery. Perhaps the reason largely lies in the fact that the occasional traveller is forced to make his way continuously through very deep, low valleys with dense vegetation with consequently no outlook. Not until one climbs to the high ridges can anyone gain a real conception of the country. Even the passes are narrow defiles yielding only very limited views. My attention was first called to this country by the appearance on the 1932 Mt. Baker Forest Service Map of large areas that hitherto had been blank. There are still no topographic maps for the range east of Mt. Baker and north of Cascade Pass, an area of more than 2000 square miles. As I could gain no information on the country, the only solution was to make a personal exploration. This resulted in spending much time and effort in discovering that some areas look their best on the map, but it has all been good fun with the usual thrill that comes from penetrating into quite fresh and unspoiled wilderness. In the course of a series of backpacking expeditions since 1932, nineteen new cairns have had to be built in various parts of the range.

The only maps of the region are the Mt. Baker and Chelan National Forest maps and the Stehekin and Glacier Peak quadrangles. The most satisfactory way of approach to the finest country is from the east. The western slope has a very heavy precipitation, over 100 inches in some parts and is always dampish

in the best weather. On the extreme edge of the east slope the precipitation is reduced to 8 inches, but near the divide a satisfactory averaging of these two extremes is found. The easiest route to the heart of the range is via Lake Chelan, the least publicized beauty spot in the nation. This narrow fjord of a lake is 56 miles long; its greatest width is only 2 miles. It forms a magnificent highway of approach; the four and one-half hours' trip by boat—there are no roads—is one constant crescendo of impressive grandeur and is decidedly worth making for its own sake. The lake is over 1000 ft. deep with indescribably clear water; in some places the walls rise more than 7000 ft. from the water's edge. At Lucerne on the west shore or at Stehekin at the head horses can be procured for trips up Bridge Creek, the Agnes and Stehekin. Arrangements could probably be made to come out down the west slope by way of the Cascade, Suiattle or Skagit Rivers. The trails are few and rather poor. The safest month is August. Deep snow, fallen trees, swollen streams and usual wreckage from the winter and spring avalanches make the existing trails almost impassable for animals until they are cleaned out by the maintenance crews. There is a store of very individual beauty and charm to these mountains, but anyone expecting to enjoy the best part of them will have to be prepared to work for the reward. They are not for tourists.

W. PEAK OF MT. BUCKNER (9080 FT.) FROM E. PEAK

BOSTON GLACIER, LOOKING W. FROM E. PEAK OF MT. BUCKNER

Photos, H. F. Ulrichs

THE SKETCHED ROUTE SHOWS COURSE FROM ABOUT 2.30 P.M. ON THE SECOND DAY

The topmost point is Liberty Cap, the north summit of Mt. Rainier. Columbia Crest, the main summit, lies a little to the left and behind the Cap. One hour was required between the Cap and the Crest

The First Ascent of Mt. Rainier by Way of Liberty Ridge on Willis Wall

(September 28 - October 1, 1935)

OME DAIBER[1]

FOR years the north face of Mt. Rainier (Willis Wall and surrounding territory) has stood unconquered. The mere sight of it was enough for most men, although a number had had a secret ambition to sometime attempt it.

The great cirque forming the wall is bounded on the east by Curtis Ridge and, nearly a mile and a half to the west, by Ptarmigan Ridge. Liberty Ridge, rising up at nearly the center of the cirque, is even steeper than Ptarmigan or Curtis Ridges.

Nearly six years ago I had my first close view of this rugged and thrilling, avalanche-infested north face of Rainier. I wanted to climb it. Seeing it at various times afterward, I was intrigued still more. During the summer of 1933, I decided that I would try it.

In May, 1934, Bradford Washburn was making a flight around the mountain and so I asked him to take a picture of the Willis Wall region. Later, studying the big enlargement which he gave to me of the original, I picked out what I thought to be a possible route up Liberty Ridge.

It was not until September of this year that I was able to definitely plan this climb. Major O. A. Tomlinson, superintendent of the park, cooperated in every way possible. September was about the best time of the year we could have chosen, because avalanches are not nearly so numerous as during the summer season.

My two companions, Will H. Borrow, Jr., and Arnold Campbell, both of Seattle, were seasoned climbers. Our equipment was complete; ice-axes, crampons, 100 feet of climbing rope and 50 feet of $\frac{3}{16}$-inch line, primus stove, 1½ quarts of gasoline, blizzard tent, lights, compass, willow wands (¼-inch dowel trail markers, 3 feet long with the upper half painted black), goggles, warm but light clothing, and food for four days (enough for a week, if necessary).

[1] The writer was a member of Mr. Bradford Washburn's Yukon expedition of 1935.—*Ed.*

We were out to climb this north face, if it could be accomplished within a reasonable margin of safety.

Saturday afternoon, September 28th, we left Cataract Creek. Three hours later we stopped at 6500 ft. on Curtis Ridge, had our dinner, and prepared for the night with two sleeping bags for three men—a tight fit with little sleep for anyone.

Next morning, we climbed to 8500 ft. but had to lose about 800 ft. of elevation before we could get off the ridge onto the Carbon Glacier, which we finally gained at 8.30 A.M. From there on, we began to lay our willow-wand trail, the markers being set out every 100 ft. This trail was to be used in the event of our being overtaken by a storm.

The closer we came to Willis Wall, the more we were thrilled by its ruggedness and the roaring avalanches!

Travelling was good until about 11 o'clock, when we entered a badly crevassed and seraced area. Twice it was necessary to lose considerable elevation just when Liberty Ridge was all but within our grasp. Many times it was necessary to jump yawning crevasses, one of which was just made by the "skin of our teeth."

Finally, about 3 o'clock in the afternoon, we found ourselves 75 yards from our ridge. To get to it, however, it was necessary to pass down through a large crevasse, the floor of which was a mass of tumbled seracs. Beyond this, we had to cut a staircase up a 30-ft. wall of glare ice and then pass very painstakingly through the bottom of a narrow crevasse which widened out into another seraced area. On the further side was our ridge which we finally made after seven hours from Curtis.

Circling around to the right side of the ridge, we started our real ascent. The sides were very fortunately covered with hard-crusted snow. Without it, the route would have been almost impossible. Up and up we went; elevation was gained rapidly because of the steepness of the slope, which averaged from 40 to 50 degrees to about 70 degrees. At times, our course led up over almost vertical volcanic rock which was dangerous, being rotten and crumbly.

At 5.30 P.M. we had reached 11,000 ft. and decided that we had gone as far as we could for that day. With our ice-axes, we dug out and levelled off a spot in the ridge where we could spend the night. After supper of corn meal and beef stew, dates and tea, we crawled into our blizzard tent. We had no sleeping bags, having left them at our first night's camp, so we proceeded to put on all

of the extra clothes we could find. The night was a long one. The stars overhead were bright and the atmosphere was cold. At different times throughout the night, we became so chilled that we had to light the primus stove to help keep us warm. All night long the avalanches tumbled, cracked and roared. The next morning after breaking camp, we started up again.

Between 11,500 and 12,000 ft., we encountered one of the most difficult parts of the climb. The angle of the slope was about 60 degrees. On both sides were volcanic masses of crumbly rock and frozen mud. Under foot was about 6 inches of powdered snow on top of smooth glare ice. It took us three hours to cover less than 400 yards. Rising up out of this, we followed the rocks on the crest of the ridge for about 500 ft., when we again had to take to the snow. Since leaving 11,000 ft., the snow had gotten deeper until now we were breaking through to our knees and hips at every step. Floundering in deep snow on those steep slopes, made our progress very slow. Whenever it was possible, we tried to take advantage of the rocks. At 13,000 ft. we had gone up the ridge as far as was possible. Ahead of us rose vertical, impassable rock. To go to the right of the ridge would have meant to expose ourselves in the path of the avalanches from the icefall above. Our only course lay to the left, out on the steep glare ice flowing over onto Willis Wall, a drop from this point of over 3500 ft. In order to gain this, it was necessary to make our way up a vertical chimney of treacherous rock. As I left one set of foot and hand holds and went on to another, everything that I had been standing on gave way and went tumbling down the mountain. Borrow and Campbell were safely sheltered off to one side. Once the party had gained the ledge, we proceeded out onto the ice, where, because of the steepness, it was absolutely necessary to cut steps. Higher up, the ice was quite rough and our crampons held well without steps.

At 4.30 we stopped at 13,500 ft. and ate an apple apiece, the first food since breakfast except for a few small pieces of candy. Continuing on towards the draw separating the main icefall of Willis Wall from the one west of Liberty Ridge, our last problem confronted us. Two large crevasses extending from one side to the other, seemed to shut off any possible passage. We were facing success or failure. Coming up to the first crevasse, a crossing seemed impossible except for one point. Here, a snow finger hung down toward the lower lip, which I could just reach with my ice-

axe and cut out a step. My companions picked me up on one leg and threw me across. I grabbed in with my ice-axe and crampons. After levelling out a spot, I anchored and pulled the others over. The next crevasse, while it was larger than the first, did not offer any problem as we could go around the end. Success! All that lay between us and Liberty Cap was less than 800 ft. of unbroken ice and snow.

At 5.30 we stood on top of Liberty Cap, tired but happy. We had accomplished the main part of our objective. Off to the south lay Mt. St. Helens and Mt. Hood. The sun, a great ball of fire, hung low in the west. Looking to the east, we saw a shadow cast by the sun against Rainier. It was certainly a unique sight. It appeared to us as though we were standing on top of that shadow as it stretched its way far over into eastern Washington.

To get to Columbia Crest, we had to lose about 300 ft. of elevation, passing easterly down the ridge toward Russell Peak and into the col, a last climb of 800 ft. and a total distance of over a mile from Liberty Cap. Leaving the crest, we went down into the crater and headed for the east rim. Inside the crater, we encountered a very peculiar situation. Outside of the crater, the temperature was about 20 or 25 degrees above zero. Inside, the air was perfectly still and the temperature at least zero or colder—a pocket of zero-cold air. It was about 7 o'clock when we finally arrived at Register Rock on the east rim, 52½ hours since leaving our car over on the Carbon River—24½ hours actual climbing time.

We planned to make our descent by way of Gibraltar down into Paradise because the route of our ascent was difficult and would require considerably more time. And so we made our last bivouac on the east rim. It was so cold that it was necessary to burn the primus stove nearly all night long. Three times we melted snow and made hot milk, using Klim and a bit of sugar. Inside the blizzard tent, we had to take our shoes off to keep our feet from freezing. Dawn made its very welcome appearance between 5 and 6 o'clock, but it was after 6 before we finally got our frozen shoes on and were ready to go.

The descent was made in rather short order and at 10 o'clock we were making our reports at the Ranger Station. From Paradise, we made long-distance calls to announce our safe arrival and we were soon on our way to Seattle, three tired but happy climbers.

Time Out for Glacier Circle

MARGUERITE SCHNELLBACHER

WITH only ten more days at our disposal, Sterling Hendricks, Polly Prescott, John Southard and I decided to go to Glacier Circle in the Selkirks. Due to the isolation of this section we would have to backpack in all our supplies for the whole time, so we wished to keep our loads as small as possible. We had only that day in which to plan and prepare for the trip and the heap of equipment and food which we assembled late that afternoon looked hopelessly large at first, but by careful discrimination we reduced the amount to four reasonable loads.

At midnight, August 3rd, 1935, we took the train to Glacier, B. C., where we disembarked early the next morning in a driving rain. After a cold sandwich breakfast, we splashed up the road to Bill Hartley's home where we were received with true western hospitality. By noon the rain let up though the clouds were still low. We packed most of our food up to Perley Rock, located above the icefall of the Illicillewaet Glacier. Here we cached our food behind a large boulder in the snow beyond the reach of inquisitive animals. From this point we had hoped to get enough of a view across the névé to plan our route but the visibility was nil.

Early the next morning we again set forth, this time with the real intention of starting. At Perley Rock, which we now thought of as the Pearly Gates guarded by a jealous St. Peter, we were again turned back. This time we left our ropes and descended to Hartley's.

At 6.45 on August 6th we made our third attempt and were rewarded with enough of a view to make it possible to start. However, clouds closed in frequently, making it almost impossible at times to see each other. But finally we reached the far end of the névé and looked down on Glacier Circle, a luxuriant oasis in the midst of a land of ice. A vertical drop of 1500 ft. was between us and the lovely meadows below. Instead of keeping to the left below Mt. Macoun, we moved diagonally to the right down the cliff. The way below us was over grassy ledges which seemed far steeper with our heavy packs than we anticipated. Eventually we reached one pitch where we had to lower the rucksacks. Polly climbed down first to receive the baggage. At one point her wild

gestures filled us with curiosity but we could not hear what she shouted. We soon discovered that Sterling's rucksack had rolled over and dashed over the cliff.

We located the sad remains about 200 ft. below. Doubtless we would have been more amused at the crazy array of socks, underclothing, food-bags and broken tins, had we not been so weary. Sterling and I remained behind to gather what remains were useful, while Polly and John went in search of the cabin, which is completely concealed in the trees with no blazes or trail to mark the way. It was nearly 6 P.M. until we were all together at the cabin, and before we could make our supper we had to do a bit of house cleaning as the only inhabitants for over a year had been pack-rats which had found the floor and cupboard quite to their liking.

Early the next morning we approached the icefall of the Deville Glacier and crossed below but well away from the towering chunks of ice to the rocks on the left. Here we found some nice climbing up a long chimney and finally out to the top of the icefall where an extensive circle of mountains commanded by the stunning summit of Mt. Wheeler sparkled in the early morning sun. This was our objective, so we crossed to the eastern spur and climbed up the snow to the rocky outcrop. After studying a possible route we decided to descend to the glacier again and make the ascent of Wheeler entirely over the snow slope nearer Kilpatrick. Clouds began to appear over the horizon and rapidly assembled above us. By the time we were between 9000 and 9500 ft. we were completely enveloped by impenetrable fog. We tried to keep diagonally to the left in hope of reaching the Kilpatrick-Wheeler Col, but at a point well above 10,000 ft. we had seen no signs of it. Hoping that the clouds would lift, we halted for a bit of food. Through the thick fog a dark spot attracted our attention and in a few minutes we climbed up to a huge snow cornice over what seemed to be a bergschrund. Over this we worked our way and came out on a rock ridge swept clean by a fierce wind. We followed the ridge toward the left to the highest point where it dropped suddenly off, but the clouds concealed the depth. We knew this could not be Wheeler, but was it Kilpatrick? We could see nothing which could be a clue and because of the cold we dared not stay longer. Guided only by our tracks in the snow, we descended carefully and came out of the clouds into a sunny world as unexpectedly as we had gotten

into them. Though we looked back often on our return over the glacier, the clouds still concealed Wheeler and Kilpatrick.

Our next climb was up the east ridge of Fox, first over smooth slabs, where we used sneakers to great advantage, to the grassy slopes above. Here we left our sneakers and scrambled up to the rocky arête. The huge gendarme half way up was a bit of a problem but we were able to pass it by a traverse to the left and then up a steep gulley. The rock along the ridge was quite sound and offered some interesting pitches. We remained on top for some time to enjoy the view. Everywhere was ice and snowy peaks. Far across the Illecillewaet Glacier Mt. Sir Donald dominated the sky line and challenged us. It was still early in the afternoon, but we had a long distance to cover so started down the ridge again. At the large gendarme we turned off the route we had used and ran down the shaley south side of the ridge to the Fox Glacier. Keeping on the ice, we descended to the level of the grass slopes on Fox where we had left our sneakers. Our descent was to the right of the slabs we had used previously but from tree line we retraced our steps of the morning.

As we had climbed between 4000 and 6000 ft. each day for the past five we decided to take a day off. Polly and I rested by washing all the towels, sweeping the floor with freshly cut rhododendron branches and mending our tattered clothing. The men chopped wood all day, rushing into the cabin every hour or so to get relief from the mosquitoes which tortured them.

With renewed vigor on August 10th we climbed the east ridge of Selwyn. In order to move more rapidly we used two ropes, John and Sterling on one, Polly and I on the other. The appearance of clouds cut short our stay on the top and after all roping together we ran down to the Selwyn-Häsler Col and slowly up to the bergschrund which guards the top of Häsler. We hoped to go on to Feuz Peak[1] but deep rumbling of an approaching thunderstorm changed our minds for us. We hastened down to the col and made the rest of the descent over the ridge of Häsler which drops down to the Fox Glacier.

Our next ascents were the two minor peaks [S. E.] of Augustine.[2] Following the long walk across the Deville Glacier to-

[1] Häsler, Feuz and Michel Peaks are the three summits of Mt. Dawson, highest mountain of the Selkirks south of the C. P. R.—*Ed.*

[2] The highest point of Augustine was first attained in 1909 by Butters, Holway and Palmer.—*Ed.*

wards the Bishops Glacier we chose our route up a rocky rib which appeared below the two central peaks. The rock was extremely flaky. We had to exert the greatest caution to the very top of the rib, where we took a short rest. With all the speed we could summon in the deep wet snow, we hurried to the left below the threatening seracs. Two bad crevasses were crossed before we reached the bergschrund below the summits. Though the snow was soft, a sharp wind made us grateful for the shelter of some rocks near the top.

On both peaks we found cairns built by Mrs. Best's party.[3] One summit she had called "Camerade," but the other was not named at all. We looked longingly across to the highest peak which was seemingly connected by the broken ridge but our better judgment made us abandon the idea of going at this late hour with conditions as they were.

Early on the morning of August 12th we left our cozy little cabin and, profiting by our error on entering Glacier Circle, kept well to the right end of the cliff and reached the Illecillewaet névé without trouble.

The sun was extremely hot and our already badly burned faces reddened perceptibly. Arriving at Hartley's early in the afternoon we enjoyed hot baths and rested luxuriously for the final climb on the morrow.

August 13th was as perfect a day as any climber could hope for. We slowly mounted the path through the gigantic trees which are so typical of this part of British Columbia to the rocky slopes below Mt. Sir Donald.

While eating breakfast on the saddle between Uto and Sir Donald we studied the famous northwest arête of the latter peak. As it was in perfect condition we decided to make both the ascent and descent by the same route. We left our climbing boots and put on sneakers, the better to enjoy the feel of good hard work and firm footholds. The joys of the cragsmen were ours; sound rock, difficulties enough to keep us alert, spectacular cliffs, congenial companions and warm sun to fill us with cheer. Unhurried, we moved upward to the top. Our playground of the last ten days lay like a map below us. Our disappointments were forgotten as we lay here in the sun, reliving each climb and hopefully planning more for some future time.

[3] With Christian Häsler, probably in 1929.—*Ed.*

EAST RIDGE OF MT. FOX, WITH MTS. SELWYN AND DAWSON

DEVILLE GLACIER

Photos, M. Schnellbacher

EAST FACE OF MONTE ROSA

M—Marinelli Couloir. H—Marinelli Hut. N—Nordend. J—Jägerhorn. 1—Ascent of Nordend and descent of Ryan's Rib (a). 2—Descent of Jägerjoch. 3—Ascent of Fillarjoch

DESCENT ON RYAN'S RIB

ROUTE FROM MARINELLI HUT TO NORDEND

Photos, T. Graham Brown

A Summer in Zermatt

CHARLES S. HOUSTON

FOR some time Dr. Graham Brown had urged on me the delights of the Pennine Alps, and it was more than coincidence that brought us there together last summer. After a pleasant trip to London, we rattled all night over the lowlands of France to arrive at Brigue early on a hot July morning. The trip up to Zermatt, of which I had heard so much, was full of excitement for me; the yawning chasm of the river, the overhanging instability above St. Niklaus, and finally the never-to-be-forgotten first view of the Matterhorn of which so many speak, all these made a full and vivid arrival for me.

Two days were spent in the village, while I was being educated to all the traditions and legends of the valley; then we met Alexander Graven, Doctor Brown's guide for many years, and Theodore Biner and together left for the hills. Blessed with fine weather we made a short training trip across from the Schönbühlhütte to the Constantia Hut, returning by a traverse of the Rothorn the next day. Bad weather stole our hopes of continuing along the splendid Rothorngrat to the Trifthorn, and we scrambled down the Rothornjoch in clogging snow, followed down the interminable moraines, and finally reached Zermatt in a heavy rain late in the afternoon.

July 15th found us at the Bétempshütte with designs on the north face of the Lyskamm. Next morning saw the promises of the sunset fulfilled, and we were off to a perfect day, cold and clear with the rocks bare of snow. The north face gives interesting climbing, not difficult, but continuously varied. Five hours of actual climbing brought us to the lower west summit with the interesting corniced ridge ahead of us, the traverse of which took us under an hour. For another hour we lolled on the rocks below the summit with the great bulk of Monte Rosa before us until our watches urged us down the steep ridge to the Lysjoch and on over to the Gnifetti Hut for supper.

Clear weather and rather expensive hospitality sent us off at an early start next day, and we traversed several smaller summits of

Monte Rosa back to the Bétempshütte. On July 18th we were again off early, with near-midnight shivers and backward looks to warm blankets. The perfection of the dawn from the Jägerjoch dispelled these treasons, but it was with distinct embarrassment that we looked down the steep rottenness to the Nordend Glacier. Our embarrassment was not mistaken, rocks were terribly loose and our language helped decide several wavering boulders to continue their course to the depths below. But in time an intricate route led us to the foot of the rotten face where we had a most uncomfortable scurry across, under the constant bombardment from the Nordend, to the Marinellirücken, over which we searched for an hour before finding the hut. We had found no former record of a crossing of the Jägerjoch by this route, nor do I feel there should be another.

Our weather had changed for the worse, and after two days of rain, hunger overcame our fear of the Italian police and we sneaked down to the Belvedere long enough to pick up supplies. Then amid woeful predictions of arrest we climbed to the old Weissthor and walked down to Zermatt. But immediately we returned the weather changed again; whereupon we took train and arrived in Macugnaga on July 22nd, legally this time, with passports stamped and with plenty of food. In passing we greeted our friends at the Belvedere and went on up to the Marinelli Hut for the night. A day later we started early for the Nordend, really the goal of our entire summer, by the Brioschi route. By four we had crossed the snow above the Marinellirücken and started on the steep granite above. Good steady climbing up the steepish slabs and broken rock brought us to a point level with the middle of the famous "Y" where we ate breakfast at eight with a grand view before us and the warm sun on our faces. (That warmth is the one compensation for the risks of climbing on an east face.) Seeing no need for the usual descent to the couloir on our left, we continued direct up steep ice and rock, bad rock now, but luckily still cemented by the cold of the night. There was a sharp ice ridge, cluttered now and then with a rock outcrop, then a steep snow slope leading to more rock, and then a great cluster of mammoth icicles to our right. Then after short spectacular work on rock we reached the plateau and a few minutes later were munching chocolate (English chocolate, hoarded from a long-ago trip to the

Lake District) on the summit of the Nordend with all Italy below us.

The ascent had taken us eight hours odd, and we decided to try the descent of Ryan's Rib to the Jägerjoch, which has been descended only a few times and never climbed. The other descents had taken over ten hours each, but with enough extra rope we hoped to make better time. Treacherous rocks covered with *verglas* forced us to abseil for the first 80 ft. below the plateau, and further steep rock brought us to an ice ridge where steps were cut. Again we roped in two long swings down very steep slabs to easier going where we were able to climb to the top of the first great step from which we abseiled free for some 50 ft. A long stretch of steep rock led to the great step, an overhang of some 400 ft., and here I was told to abseil down to find a platform for further descent. For 90 ft. I went down, spinning free, but saw no place to stop, whereupon shouts from above advised me to climb back up again. My emotions will be appreciated only by him who has climbed the thin rappel rope. After some futile struggles I was hauled ignominiously up, kicking furiously, stiff, tired, and very unhappy. Further investigation by the others disclosed an easier route to the left where two long rappels brought us to easier work on the last steep rocks. The Jägerjoch, which had for so long seemed impossibly far away, was reached after seven, but we had still the long march down through sticky snow to the Bétempshütte which took us till eleven. There we routed out the guardian and drank hot soup and toddy till our eyes closed completely. The combination of the two great routes makes a splendid trip, very long, and entirely dependent on perfect conditions on the rock. Ryan's Rib, as can be seen, requires a long rappel rope, and, though we did not use any, a few pitons would be advisable. It is a magnificent rib, for the most part of good rock, steadily difficult, and very airy.

After several days of snow and bad weather we reached the Cabane Rossier in storm on July 29th, waited through another day of snow, and finally got away at five on the morning of July 31st for the Ferpécle ridge on the Dent Blanche. The interest of this very splendid ridge with its grand gendarme was somewhat marred by the bitterly cold wind pouring up from the north which made us glad indeed to greet the sun on the summit at 11.30. Our spirits were further cheered by breakfast on the sunny ice and the pros-

pect of an ideal descent of the Viereselgrat. We found that unique and interesting ice wall in perfect shape and did not scorn the steps which some predecessors had left us. Much of the snow had left the ridge, increasing the interest of the fine gendarmes, especially of the Great Gendarme which is almost a peak in itself. This took us some little time, slowed as we were by the loose rock on its flanks, so that we did not reach the Col du Zinal until after four. Paying our respects to the beautiful Dent Blanche of which we had taken by far the most splendid routes, we hurried down to supper at the Schönbühl, with a long sleepy walk into the twinkling lights of Zermatt to climax a perfect day.

The next weeks saw a variety of adventures. To our regret we left Graven and Biner, and with Donald Brown and Arthur Emmons set out over the Théodule Pass and into the arms of the Italian police who whisked us down to Aosta on some technicality over our passports. Luckily we were able to see the humor in a very inconvenient delay, and when, a day or so later, we swam in the luxurious Lake Maggiore from Baveno (a town I would advise no climber to neglect, as the lake waters are guaranteed to remove any amount of grime, aches, or other ills), we blessed the over-efficient police. From here we were again drawn to the east face of Monte Rosa, spending two happy days scaling the huge boulders in the Pedriola Alp as we waited for settled weather. August 11th was clear, but Brown and Emmons had left by train, so Doctor Brown and I crossed over to Zermatt by the almost unknown Fillarjoch, between the Jägerhorn and the Gross Fillarhorn. A long scramble with one short passage of interest brought us to steep snow which led up to the actual rock face. At ten we entered a very steep couloir running up to the south but left it very soon when threatened by a nasty looking serac wall above. No other line offered save a direct ascent of the forbidding wall, and a way was made with some difficulty over smooth slabs. Without finding a single place where two could even stand together we worked up through varying rock for the better part of three hours until, at two in the afternoon, we reached a little platform near a waterfall. Food and rest were welcome as never before; we each relieved cramps with a solid bouillon cube, unappetizing but effective, took a few pictures, and clambered up the few remaining rope lengths to the top of the pass. Again a long

and supremely happy walk took us down to Zermatt by moonlight, and when we tumbled into bed at eleven we realized a day well spent. Our route here was probably unique as there is little or no reason for the pass to be used in the trip from Italy to Zermatt. Few attempts have been made on the face of the Fillarhorn itself, and most of these have failed, while the only recorded passage of the col is that of Sir Martin Conway who seems to have found a good route up the couloir, today topped by seracs. I believe we chose the best way on the face; indeed in many places there was no choice, and the rock is solid enough for a rope of two, though we both agreed it would be very unwise for more to be on the face together.

This was to be our last climb together; the next days brought heavy rain and I was forced to leave on August 16th. I evidently missed my friends more than they regretted my absence, for a few days later Dr. Brown and Emmons climbed the Dufourspitze. This they claimed, in regrettably lazy manner, entitled them to a day or so in Baveno, and there in Roman luxury our mountaineering trip ended.

Long Ago at Chamonix

EATON CROMWELL

IT all seems so far away and very long ago.[1] Actually, it is twenty-five years since my mother, wishing to have company on a motor trip abroad, had me sent from school immediately the spring term closed to the *Kronprinzessin Cecilie*—with her sister ship, the *Kaiser Wilhelm II,* then the most popular vessels of the North Atlantic ferry—and so on to Aix-les-Bains, where she was spending the month of June. In those days people did not stay merely for a night or two in a watering place, but "took the cure" in a leisurely, determined manner. It was the proper thing to do. The process permitted plenty of dining out and short motor trips about the countryside, to Chambéry, Grenoble—the Grand Chartreuse, of course—Annecy with its lake and mountains, and occasionally Geneva. In the latter place we lunched invariably at the Restaurant du Nord, still on the terrace overlooking the outlet of the Rhône.

From the other terrace across the river one fine day we saw far away, yet huge against the brilliant summer sky, the moon-pale *massif* of Mont Blanc and its long chain of satellites. The self-same view, more than a hundred years before, had lured a young scientist, Horace-Bénédict de Saussure, to visit Chamonix and offer a reward to the man who would discover a way to the summit. He intended to make scientific observations there, and eventually did so, but at the same time unconsciously inaugurated the long drawn out conquest of the Alps, terminated only last summer with the ascent of the north face of the Grandes Jorasses.

The cure completed, it was the fashion then to take an "after-cure," which meant staying for a month or so at a slightly higher altitude, and pleasantly idling the time away before returning home to the hardships of a winter season. Among other resorts, the French physician suggested Chamonix, and attracted even as was de Saussure by that distant prospect, we motored over the Col des Aravis, having the road almost entirely to ourselves,

[1] The moral, if any, of this paper is that "Great oaks from little acorns grow." The writer ascended more than sixty peaks in various districts of the Alps during the summer of 1935, beginning with Piz Scerscen by the ice-nose.—*Ed.*

CROSSING THE MER DE GLACE IN 1885

MER DE GLACE AND MONTANVERT FROM THE CHAPEAU

a pleasure all too rare today, but incidentally having to halt and fill the radiator several times at roadside torrents.

We were thrilled by the views, and with Chamonix itself, then at its quaintest. Less sophisticated than today, it was already the Clapham Junction of the Alpine world, and the experts had long since begun to desert Couttet's for the Montanvert. All that meant nothing to us—every tourist with a rope and heavy boots was a hero of the high peaks, and the constantly changing kaleidoscope of nationalities a continuous delight. After all, we were lowland folk, and I had been born on an island, living by the sea all my life.

Sooner or later the inevitable happened. We visited Montanvert and, after much begging for permission, and with the aid of an interpreter, I obtained a pair of woolen socks to pull over my shoes, and a guide, one Jules Claret-Tournier, who led me down to the glacier—the famous Mer de Glace, and around on the ice (real *ice!*) by hand, as it were, and occasionally cut a step for my edification. All this pleasure and adventure cost but five francs. Somehow Jules managed to break sufficiently through the language barrier to tell me that to go across the Mer de Glace to the Mauvais Pas and the Chapeau would be only fifteen francs, and very exciting.

For some days I deluged mother with tales of the fascination of glacier walking. At last she succumbed, had her boots lightly nailed, and proceeded to the sacrifice. Jules, really a good fellow, gave us full value by descending the Mer de Glace as far as the Glacier des Bois, and there putting us on the path. He had to do a good deal of step-cutting. Then we had quite a scramble over the moraine, and the walk down past the Chapeau inn to the valley is steep and far from short. This was no mean performance for a rather sedentary lady in her forties, but she arrived in good time at the Grand Hotel and Savoy Palace, footsore but triumphantly under her own power.

The ever insidious Jules had meantime told me of another expedition. There was a place called the Jardin, some hours up the glacier, an island meadow in the heart of the world of snow and ice. Nearby, the Couvercle could be visited at the same time, a hut much frequented by *real* mountaineers, something not to be missed on any account, and quite easily reached by such good walkers as *monsieur* and his mother.

It appeared, however, that the young gentleman's mother had had enough mountaineering for the season, but having observed at first hand the perils of the road, was disposed to permit the excursion to take place—without *her*. Accordingly, my high tan boots, then much favored by the upper forms for dressy wear, were refurbished with nails, a long alpenstock and a green Tyrolese hat, decorated with chamois-beard, procured, and off we went.

I found the walk to the Couvercle marvelous. The alpenstock proved its worth as an aid to vaulting over crevasses in the dry glacier, although it has never seemed of any value since, and the hut and the genuine mountaineers came quite up to expectation. Fortunately no inkling came to my young heart of experiences to be undergone in later years in that same pigsty.

The Jardin was superb. A meadow full of flowers and butterflies, in the heart of an ice-world, surrounded on three sides by gigantic walls of eternal granite. Satiated at long last with the magnificent view of the icefall of the Glacier du Géant, and Mont Blanc beyond, I descended by the left bank of the Glacier de Talêfre, past ruins of the old shelter at Pierre à Béranger, and so back to Montanvert, arriving with joy in my heart but quite devoid of nails in my boots. However, Providence was looking out for me, and not even the ironic admiration of several parties of British climbers for my outfit could disturb my equanimity. In all innocence I accepted their homage as genuine, and determined to try the Tour of Mont Blanc, which Jules had so highly recommended.

By this time we had discovered and read that classic of Chamonix, *Running Water* by A. E. W. Mason, and were among the best patrons of the big telescope. A young Italian acquaintance went up Mont Blanc by the usual route, and we were thrilled to watch him plugging along through the deep snow. It has since occurred to me that he must have gotten off to a very late start. On his return, much sunburned and rather red about the eyes, he regaled us with lurid tales of his adventures. All of us know how suddenly that comparatively easy tour can become something very serious, but I fear that in this instance there *was* some embroidery.

With beginner's luck we had arrived at Chamonix in that never-to-be-forgotten summer of 1911. Day after day was clear and bright, the perfect weather disturbed only by an occasional summer shower. "Is it always like this?" we would ask. "Oh, yes, always," the hotel would reply. Shades of Ananias!

Mother quite properly objected to entrusting her offspring to a guide who spoke no English. After due consultation with the concierge he promised to secure a good man who did, and produced one Michel Desailloud, the object of my admiration, nay, veneration, for many years. After all, I was only seventeen, ingenuous at that, and Michel turned out to be the protagonist of the old guide in *Running Water,* and had often led the author himself. While proud of his part in literature, he was at the same time highly indignant that his double should have been described as past his work and sunk to be a muleteer. This story amused Mason hugely some years later; he was, I hope, also a little pleased at his part in the making of a mountaineer.

Michel inspected my outfit, insisting on my buying a proper pair of nailed boots, woolen stockings, an ice-axe and dark glasses. He loaned me mittens and a stocking cap. We then went up the Buet, from Pierre à Bérard, to see the sunrise on Mont Blanc, something no mountaineer should omit. We descended behind the Aiguilles Rouges to the inn on the Col d'Anterne, and next day walked over the Brevent and down to Chamonix.

Michel then considered me ready for higher things—the tour of Mont Blanc would now take place. Mother motored us up to Argentière, and with my modest belongings in the guides' packs—Jules came along as second—we walked up the dusty path to the Pavillon de Lognan. Michel got me a room, and then left me on the terrace with half a bottle of white wine and some biscuits. This was my very first drink, and shortly after finishing the bottle the Aiguille du Chardonnet began to do astonishing capers, the entire landscape joining in to revolve about my buzzing head. I hid behind a rock until things quieted down.

The chalet was crowded that night, mostly English climbers with guides, among them several ladies. Mr. Young had just then performed his remarkable feats on the Grandes Jorasses, and I recall a hot discussion as to whether the reported "hand traverse" of a 100 ft.—or was it a 100 yards?—was really possible. Finally the gymnast of the foremost guideless party pronounced that such a thing could probably be done, provided one could obtain occasional aid from the feet. My eyes fairly bulged at all this.

In a corner sat an Italian gentleman, who had just crossed the Col d'Argentière. He was too exhausted to move or eat, so his guide took off his boots and led him to bed. Qualms for the mor-

row crept over me. A kindly Scotswoman inquired whether I was about to do my first serious climb, and assured me that all would go well and that I would have a lovely day. I am still grateful. We all retired early, but I lay awake, wild with excitement, listening to the crash of tumbling seracs in the icefall. In later years it has been less active, or else I sleep better.

We started well before dawn. The night was clear and cold. To this day the clink of steel on stone sets thrills coursing up and down my spine. Daybreak found us crossing the Glacier d'Argentière to the left bank of the Glacier du Chardonnet, which we ascended in company with the Scotch party, the latter turning off to the right after second breakfast to do the Aiguille d'Argentière. We continued straight on to the Col du Chardonnet, over the undulating surface of the upper glacier basin, and through what is to me the loveliest and most impressive scenery in the Western Alps. The northeast side of the pass usually offers some trifling technical difficulties. We couldn't get over the bergschrund on the true left bank, and had to make a somewhat delicate traverse to the other side to find a snow-bridge. Once down, the rest was plain sailing. We crossed the Glacier de Saleinaz to the Fenêtre, then as now quite easy, but a splendid viewpoint, and had a long rest and lunch.

In the afternoon we descended the Glacier d'Orny, visiting the cabane in passing, and down the interminable stony way of the Col de La Breyaz to the Arpette Valley and the Lac de Champex, hung on the mountainside like a swallow's nest in a chimney. In the early evening we went for a row on the lake. It was probably the first time Michel had ever been in a rowboat, and he was intensely interested. The sunset on the Combin seen from here was splendid.

Next day was an easy one. We walked up the Swiss Val Ferret through the Col du Petit Ferret, a shortcut, and down the Italian Val Ferret to Courmayeur. The carriage road comes far up this valley and we rode much of the way. At the Hôtel du Mont Blanc I requested a bath, and was puzzled when what appeared to be a "Charles of London" chair done in tin arrived in my bedroom. A sheet was draped over this, and before it were arranged six pitchers of water, three hot, three cold. After some thought I deduced the system to be followed, and had quite a good wash.

Our next stage took us up the Val Veni past the foot of the Brenva Glacier and the great southerly cliffs of Mont Blanc. At

the Cantine de la Visaille we lunched on sardines and an excellent soufflé omelet. It was charming to observe how the pigs and chickens wandered unhindered in and out of the combination kitchen-bedroom behind the restaurant. Some years later their descendants were doing the same thing, but the omelet, alas, was not so good. As we passed the enormous terminal moraine of the Miage Glacier, once considered one of the wonders of the world, mist closed in and it commenced to drizzle. We crossed the frontier at the Col de la Seigne, and reached the hamlet of Les Mottets in clearing weather. At both frontiers there had been customs guards, but they did not so much as honor us as to put their heads out of doors, and as for passports, I had heard of them as something one needed in Russia, but so far had never seen one. He may well sigh for the old days who now endeavors to repeat this once favorite tour!

At dinner I sat by a young Englishman who had been climbing in a small way with a guideless party. He told me some very tall stories, and made the usual slighting remarks about Americans. This was my first experience of the sort and I must confess that I became indignant. The next day Michel was unwell, as was I, so Jules carried most of the load and led, announcing that he was both guide and porter. The ascent to the Col du Mont Tondu is quite easy, though here and there it was necessary to slice steps in the hard frozen snow of the early morning.

From the pass one has a magnificent view of the peaks around the Trélatête Glacier. It is a pity that this district is so little visited. The descent to the glacier is rather steep in places, and one keeps to the right side for the most part. I well recall Michel walking immediately behind me, and practically carrying me over the steeper bits. He was taking no chances with his novice. Once on the flat we arrived early at the Pavillon de Trélatête, where I indulged for the first time in that delicious mixture of much cold milk with a little cold tea, brandy and plenty of sugar.

The car which we expected to meet us at Notre Dame de la Gorge, by some confusion had instead taken a party of friends to Geneva, so we were obliged to walk all the way to St. Gervais, and go on to Chamonix by the train. My mother had never seen a really tired youth before, and was somewhat alarmed. But a hot bath, a good dinner and a night's rest put all to rights again, and only the delightful recollection of my journey around the Great White Mountain remained.

An Early American Attempt on Mont Blanc

(Dr. Grant—1839)

The first American ascent of Mont Blanc was made by Drs. Howard and Van Rensselaer in 1819. The second American ascent, by Dr. I. T. Talbot, was not accomplished until 1854. In the interval, however, more than sixty tourists, including Albert Smith, stood on the summit, the number increasing as progress of railroads on the Continent facilitated the approach to Chamonix. In fifteen of the seasons between 1819 and 1851 there was no complete ascent recorded, and mountaineering had not yet become a recognized sport.

The annals of Mont Blanc have given little attention to an attempt on the mountain made by an American physician, Dr. Harry Allen Grant, in the summer of 1839 when he was twenty-six years old; and still less to the man himself, whose scientific interest in the matter was in the best traditions of Saussure.

Dr. Grant was born at Simon's Island, Ga., on January 23rd, 1813.[1] His father had been a surgeon in the British Navy, resigning and purchasing a large plantation in Georgia where he passed the remainder of his life. The son went north at the age of seven to be educated, returning home only for brief intervals thereafter.

After attending Union College, where he was graduated in 1830, Grant received his M.D. from Baltimore Medical College and began practice in Albany, N. Y. There he remained three years, but after the death of his wife, the former Louise Bloodgood, Dr. Grant went abroad for study, spending four years on surgery, chiefly in Paris. It was during this time that he went to Chamonix.

Returning to America, Dr. Grant settled in Hartford, but, after some twelve years, illness forced him to withdraw from his profession. He went to Europe for medical advice and his health was largely restored. He then took up residence in Enfield, Conn., marrying the daughter of Orrin Thompson, by whom he had two sons.

Although a Southerner by birth and education, Dr. Grant took the side of the National Government during the Civil War. He was Surgeon-General for the state under Governor Buckingham and, in 1862, was one of the representatives for Enfield at the General Assembly. For a time he was also Collector of Internal Revenue, and in 1864 became chairman of the delegation from Connecticut to the Republican National Convention at Baltimore.

"In all positions Dr. Grant was faithful and efficient. He was a man of broad and fine culture, of courtly manners, of tender sympathies and generous deeds. The poor, the sick, and the young were the special objects of his regard and kindness. He strove to make his life a practical illustration of Christian truth." He died at Enfield on November 30th, 1884, in his seventy-second year.—*Ed.*

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[1] See J. Hammond Trumbull, *The Memorial History of Hartford County, Conn.* (1633-1844). Despite an exhaustive search, no portrait of Dr. Grant could be found.

Dr. Grant's account of his visit to Chamonix, entitled 'A Week Among the Glaciers,' appeared in the *American Journal of Sciences and Arts* (xlvi, 281),[2] where Van Rensselaer had also published the news of his own ascent. Dr. Grant's narrative now follows:

WE arrived at Chamonix (Chamouni of many tourists) on Friday evening, July 12th 1839, and strolled about this small but remarkably situated village. Chamonix is at the base of the monarch of the Alps, and completely surrounded by these stupendous barriers, which Nature has formed, as if to seclude these inhabitants of its peaceful vale from intercourse with, and consequent contamination from the adjoining nations.

Here in the space of a few square miles, has Nature congregated her most gigantic piles, and displayed with wasteful prodigality the immensity of her power. On every side the lofty peaks of the Alpine chain present themselves to the eye, and bound abruptly the limited horizon. While every mountain presents its own peculiar attractions, each possessing advantages denied to all the rest, they stand as opposing rivals, conscious of their own matchless attractions. On the east rises the Montagne Vert, celebrated for its *Mer de Glace* and garden; this is a spot that nearly every traveller visits, and is accessible with no great fatigue and little danger. To the south rises in fearful and majestic height the mighty monarch of the Alps (Mont Blanc), flanked on either side by the Dome de Gouté and the Aiguille de Midi, which stand as sentinels to guard the icy pass to the throne of the Alpine king. Nearly all are at first disappointed in the height which Mont Blanc presents, and this is doubtless from the description either of friends who have visited this spot, or the accounts given in the "hand-books of Chamonix," which describe the mountain as the "dark frowning monarch," etc.

Mont Blanc possesses a character to which appellation will not apply. It rises far above the surrounding mountains; and as its lofty summit towers above the rest, it impresses the beholder not with the awful sublimity that does our own impetuous Niagara, but by its grand and majestic serenity the turbulent passions which agitate our bosoms are quelled to silence in contemplating the stillness that rests on its eternal snow-capped heights.

[2] Reprinted in *The Recreation. A Gift-Book for Young Readers;* London, 1845, under the title 'A Week Among the Glaciers'; and in *Curiosities of Modern Travel: A Year-Book of Adventure;* London, 1845, as 'Thirty Hours on Mont Blanc.'

In the valley of Chamonix runs the river Arve, and has for a tributary the Arveron, which issues from beneath the Glacier du Bois, and is visited by all to see the icy arch, which has been formed by the waters of the river, in conjunction with the rays of the sun. Its height varies much in different seasons, and even during the year; it may be named from 30 to 100 feet.

The ascension of Mont Blanc is attempted by few. The first successful one was made by Prof. De Saussure,[3] whose valuable researches, and the praiseworthy object he had in view (the advancement of science), are sufficient excuse for hazarding the lives of his guides, who are tempted by money to brave the inevitable danger of the journey. Since his ascension it has been attempted by a few adventurers with varied success, and generally with no other motive than mere curiosity or a spirit of bravado. Recently a Dr. Barry[4] of England made a successful ascent, and has published an account of it, with his observations; but owing to the inaccuracy of his instruments, his experiments cannot be relied upon, which we much regret.

By the present arrangement of the government, the ascent of Mont Blanc is very expensive, in consequence of the great number of guides requisite to be taken; and it is also annoying by the forms and ceremonies attendant on such an expedition. When a party intend making the ascent, mass is previously said in the village church, for the safety of the guides and travellers; and the guides, for whom more especially it is said, are obliged to attend. On the whole it is rather an imposing sight, to see these sturdy mountaineers attending this religious ceremony, before attempting to brave the dangers of an ascent.

The attempt to ascend Mont Blanc was to me quite unexpected, for I did not wish to risk for myself the dangers of an ascent, and much less the lives of the guides necessary to such an excursion. But being in company with two English gentlemen, who determined to attempt it, I was persuaded to make it with them.

Having made known our intentions to the *hotelier,* he immediately sent for Couttet,[5] who selected the most trustworthy of the guides, eighteen for us; and six more, after seeing the preparation of eatables and drinkables the landlord had prepared for our

[3] It is difficult to understand why Dr. Grant should have been unaware of the first ascent, by Paccard and Balmat, in 1786.

[4] Martin Barry.—*Ascent to the Summit of Mont Blanc in 1834.*

[5] Probably Joseph-Marie Couttet.

journey, volunteered to accompany us, for the privilege of free access to our haversacks. Everything being arranged the night previous, we breakfasted the following morning, July 15th, at 4 o'clock. The hotel presented at this early hour a lovely scene, while the guides were depositing in the different haversacks the provisions which had been prepared, and which were truly in amount enormous for the time we anticipated being absent.

One hour later and we were already skirting the base of the mountain, myself and two friends on mules; and in this way we proceeded, till we entered the thick growth of pines that clothes the mountain side, through which we wound our way, until the broken fragments of rocks and the trunks of fallen trees prevented the further progress of the mules, when we dismounted and sent them back, while we proceeded on foot through the pines, which now becoming less and less thrifty, soon ceased altogether, and nothing but the barren rocks, with only here and there a scraggy shrub, till about 9 o'clock we arrived at the point of perpetual snow, where we halted to take a second *déjeuner à la fourchette* (breakfast).

It was at this point we determined to enter upon the Glacier des Bossons, and crossing it, to ascend the mount on the opposite side, which would, we conceived, be easier and less dangerous than continuing our course up the glacier to the Grandes Mulets, which was the point we wished to gain as a resting place for the night.

Here I made an experiment[6] to test the diurnal advance of the glacier. I took three large blocks of stone, with the smoothest faces I could find, and having placed them in a straight line about ten feet distant from each other, I sighted (in the usual manner of farmers in setting a post and rail fence) along the smooth faces of the stones which were turned towards the summit of the mountain. I then had three other stones carried on the glacier at the distance of 50 to 60 feet from each other, and placed in a straight line with the three former stones, and left them to mark the change which should take place in their relative positions, on my return.

A similar experiment I made in the evening on my arrival at the Grand Mulets, and on my return to the Grand Mulets the next day at 1 o'clock, P.M., which made nineteen hours for the former,

[6] This is a very early date for experiments on glacial motion: Hugi observed the position of the block on the Aar glacier in 1827 and Agassiz was working in the Oberland during 1836-9, but Forbes did not begin his study on the Mer de Glace until 1842.

and thirty-one for the latter. The stones on the glacier had descended during this time, from a line drawn from the upper surfaces of the stones on the mountain to the upper surfaces of the stones on the glacier, between 12 and 13 inches for the former, and about 21 inches for the latter, which is about 16 inches for the twenty-four hours.

The number of pulsations and respirations per minute, of the whole party, I had taken at Chamonix, previous to leaving, and found that the average was seventy-six of the former and sixteen and a half of the latter. At this point, the perpetual snow line, there was a slight acceleration, the respirations being eighteen and pulsations eighty-two per minute, after resting fifteen minutes, and of course previous to eating, as the pulsations are augmented during the process of digestion.

At 10 o'clock, A.M., we entered upon the glacier; the travelling was at first neither difficult nor fatiguing, for we had each a well-tried Alpenstock, which was equal to a third foot in case of need, and our shoes, made for the occasion, were well armed with square-headed nails throughout the whole extent of heel and sole.

The extreme purity of this glacier is remarked as greater than that of either of the other glaciers in the valley of Chamonix, and its crevasses present most perfectly the bluish green, and from that to the deep blue of the gulf water. The crevasses in this glacier are much deeper, wider and more extensive, than either of the others in this valley; and this is owing probably to its great extent, and to its being one of the most precipitous of the Alps. They vary in width from a few feet to many hundred, and taking their length, including their windings, from a few rods to one or two miles. Their depth has been estimated by De Saussure, for the deepest, at 600 feet, which has been considered as exaggerated—an opinion in which I should agree, if this depth is given as common; but that there is one, and indeed that there are several, of this depth below the Grand Plateau, I confidently affirm. One in particular, which I measured with a rude instrument constructed on the spot for the purpose, proved between 800 and 900 feet deep; it was but a short distance from the Grand Mulets. This crevasse, as I should judge, was about one-fourth of a mile in width, and seemed to have been formed by the inferior side sliding down to the distance mentioned above as the width of the crevasse, while its superior portion, remaining apparently stationary (I say apparently, because the whole mass is perpetually moving onward), had

increased in height, by the additions made to it from the falling avalanches, so that the upper side rose more than 200 feet above the inferior side of the crevasse; consequently, measuring its depth from the highest point of its upper edge, it measured near 900 feet, while from the highest point of its inferior border, my instrument marked something less than 600 feet. This I give as the maximum depth of any crevasse which we observed in this ascent. The crevasses are, however, generally from a few feet to 50 or 60 deep. Many have their sides nearly perpendicular, but in the deeper ones they are always zigzag, and many of the deepest, when they are very wide, may be descended with but little risk by means of ropes and hatchets, which are a necessary accompaniment to these expeditions. The crevasses which are the most difficult and dangerous to cross, are those whose width is about 60 or 80 feet, and 80 or 100 deep. These frequently extend to a great length, and to avoid the fatigue attendant on following them parallel to their length, an attempt is sometimes made to pass on the bridges, which have been formed by avalanches falling across them, and thus wedging in immense blocks, forming in many places a rude but substantial arch, which rises some 10 or 20 feet above their borders, and as many wide, making a very safe and convenient passage, while others at their base are sufficiently wide to tread on with perfect ease and safety. At the apex of the arch, they become so narrow, by melting, that it is quite impossible to stand erect upon their summit; it being only a few inches wide, and sloped on either side like a saddle, one is obliged for a few feet to sit astride of them as on horseback, and trust to the steadiness of his nerves and the firm grasp of his knees, to accomplish a safe transit. The ascent of these bridges is much easier and less hazardous than the descent, in consequence of being compelled, while descending, to look continually into the gap of the depth below, exhibiting the precariousness of the position.

We traversed these seas of ice and snow from about 10 o'clock, A.M., till between 5 and 6 o'clock, P.M., when we arrived at the Grand Mulets, which we should have reached at least two hours sooner, had it not been for a newly formed crevasse of very great extent (I say *newly formed,* because my guides said that the year previous when they made the ascent to the Grand Mulets it did not exist). It was of various width throughout its length, from fifty feet to one-fourth of a mile; and in following along the side we were obliged to ascend about one thousand feet above the

Grand Mulets before we could find a place to cross it, being about two-thirds up the length of the crevasse, where turning abruptly, at nearly a right angle, it was filled for the distance of 200 feet or more by avalanches, which had fallen from the Grand Plateau, or the summit of the mount, and illustrated in the grandest and most impressive manner, the way in which gravity hurls down and piles up these immense masses of snow and ice to the height of hundreds of feet, and so equally poised upon pedestals of ice, that have been wasted away by the heat of the sun, till it seems impossible that they could bear the enormous superimposed weight. In crossing the chasm at this point, we passed under these shelving masses, some of which projected 100 feet over our path. The scene was one of wild magnificence; and it was at this point that our guides enjoined the strictest silence, and to tread with the utmost lightness and precaution, which injunction I regarded at the time as being merely an attempt *ad captandum,* in order to enhance in our estimation the value of their services. Being excessively fatigued, and being here screened from the wind and dazzling rays of the sun, I proposed to halt and rest, to which my guide in the most peremptory and positive manner objected, saying if I attempted to stop at this point, he should be obliged to take me up and carry me from underneath this shelving ice, while at the same time, pointing to the water which was dripping slowly from its summit, and trickling down its side and base, he said it would not stand another day's sun, and any cause which should produce a slight vibration of the air, would dislodge other masses above it, which were less firmly fixed than even this one, and they would set the whole mass to tumbling headlong down. This being spoken with so much earnestness, and in a mere whisper, I proceeded. Our *valet de place,* whom we had taken with us, was immediately before me, and being rather awkward, moved very slowly, and had already made one or two false steps, which my guide seeing, advanced at once and stopped him, then told me to pass him, as a few more such steps might set some of the smaller blocks in motion, and as we were behind, we should lose our lives, by his stupidity. I passed him, and a few minutes' walk carried us to the opposite side of this dangerous pass, where we sat down to rest and viewed from a point of safety the danger which we had almost unconsciously braved. It was now frightful to see other promontories of ice, which while we were crossing them had been hidden from our view, resting upon mere feathery edges, with sheets of

snow dropping over their edges in festoons, appearing scarcely thick enough to support their own weight.

Our guides told us we could now prove, or rather test, the truth of their assertions respecting the powerful effect of the vibration of the air at this height, which hint we at once availed ourselves of, by ordering the whole company to give three shouts at the height of their voices, which they did, and the effect of which was quickly visible. The first shout produced no sensible movement, but with the second, though the sound produced none of that sharp echo, which we so often hear in the gorges of the mountain valleys, yet its effect was manifest, first upon those festooned edges of snow which I have mentioned above, and which with another loud shout began to detach themselves in quick succession,[7] falling in considerable sheets, till one of no great size fell some 80 ft., upon one of those huge rocks of ice, which was poised so equally that it required but the slightest force to turn the balance, when this slid from its resting place, with but little velocity, not as fast apparently as a man would walk; but the momentum of so large a mass must have been enormous. I should judge its slide was not more than 12 or 15 ft. (though it may have been many more) when being suddenly checked, by its base coming in contact with another mass, the momentum it had acquired in its slide threw its summit beyond the center of gravity, and it pitched headlong down the broken plane of the crevice, which was followed by an active scene of wild and terrific confusion. Avalanche succeeded avalanche of enormous size, as the fall of one detached others larger than itself.

At first their motion was slow and regular, as they merely slide from their resting places, till arrested by another mass, when they came tumbling, rolling, and bounding down as their velocity increased, till no barrier could check their impetuous course.

At their onset, each could be distinctly seen, and marked amid the rest, till by their increased velocity, according to the obstacles they encountered as they rolled onward in their descent, bounding from crag to crag with resistless force, they would rend and shiver themselves and opposing obstacles into immense masses. They seemed to gain additional power from each opposing barrier, till opposer and opposed, rent into ten thousand fragments, rushed headlong, tearing, crashing, thundering down, as if possessing

[7] The production of avalanche by vibration is mentioned by Simler (1574), but this is a unique instance of a scientific man observing the phenomenon.

within themselves the elements of life; then deviating from side to side, as any solid angular inclination turned them from their forward course, till ground and broken into myriads of pieces, their forms became too indistinct to be any longer discerned. They then assumed the confused appearance of a circumscribed storm of thick hail and snow, driven madly onward by a furious tempest, until it reached its final resting place, far down in the rough and jagged bosom of the glacier, of which it now forms a part, to be carried slowly yet surely to the valley, and there being liquefied by the rays of a summer sun, to aid in swelling the torrent of the Arve. This mountain river, as if exulting in being loosed from its icy bondage, then leaps joyously along, till it mingles its waters with the deep blue sea—although mingled, yet it is not lost, for it may again assume another and lighter form, as in vapor it rises from the tranquil bosom of the Mediterranean, a part to be wafted by the soft zephyrs of Italy to irrigate her fertile plains, while the rest may be again transported to clothe anew the lofty summit of some snow-capped Alp.

Those travellers who from the valley of Chamonix have seen these masses of ice falling from the summit of Mont Blanc, on the Grand Plateau, in consequence of their distance and great height, can form no idea of their size. These blocks of ice which from the valley appear, as they are displaced, not larger than 15 to 20 ft. square, are to those who are in their immediate vicinity, from 100 to 200 ft. This kind of avalanche differs from the Staub-laminen (dust avalanche), as they are called by the natives of the Alps, which being formed by the loose fresh-fallen snow of winter, before it has been melted and made compact, is piled up by the whirlwinds which are common in the Alps; such avalanches increase as they descend, till they acquire an enormous size, covering acres, I may say miles, in their descent; overwhelming and laying prostrate whole forests of pines or villages which lie in their course. Another kind, the Grund-Laminen, fall chiefly during the early months of spring and summer, as in May and June, when the rays of the sun being very powerful, the snow becomes more compact. They are composed of soggy snow and ice, and are also very destructive.

They were avalanches of this kind, that in 1720, in Ober Gestelen (Vallais), and in 1749, in the Tavetsch, produced such devastation. The records of the valleys of the Alps abound with mournful exemplification of the destructive power of these ava-

lanches, and of many others of this class. The wind of the avalanche, whose violent effects have been described by writers, probably acts only by its vibratory power, and the concussion subsequent upon the movement of the avalanche, thus filling up the momentary vacuum produced by its rapid motion through the air. The idea of the wind of avalanches is common among the inhabitants of the Alps, as is a similar one among many of us, concerning the wind of a cannon ball, killing without touching.

In support of their opinions of the wind of avalanches, they cite the fact of large and sturdy pines being cut smoothly off, without the bark or branches being chafed, but I saw nothing of this kind, which would not be accounted for by the rush of wind to fill the vacuum. It was in this way that the village of Randa in the Visp-Thal, had many of its houses prostrated and scattered in fragments in 1720, and also one of the spires of the convent of Dissentis fell by the vibratory action of the air, produced by an avalanche which fell about one-fourth of a mile distant from it. This concussion of the air is familiar to all by the effects produced in the discharge of ordnance, near our dwellings. It may be more perfectly exemplified, by taking a bottle and corking it lightly, and discharging at a short distance, 20 or 30 ft., a musket or rifle, so that the ball shall pass about one inch over the cork; the velocity of the projected bullet produces a vacuum, and the cork leaps from its place of confinement, in consequence of the atmospheric pressure being thus suddenly removed, and by the expansion of the air within the bottle.

The Grand Mulets are two rocks which project from the Glacier des Bossons, whose summits are so pointed, and their sides so perpendicular, that the snow does not rest upon them. Here we halted for the night.

They had loaded a cannon in the valley previous to our departure, and were to discharge it when they saw us (through their telescope) arrive at this point (Grand Mulets) which they did, but neither myself nor the guides heard the report, although some of our guides said they saw the smoke.

I had taken up with me six old pigeons, the strongest and shyest I could find in the pigeon-house of the hotel, and now determined to let two of them off from the rock; the time being marked on a small piece of parchment, and attached by a string to one leg. I had desired the landlord to note the time when the pigeons made

their appearance at Chamonix.[8] I then tossed one of them a few feet in the air, that he might see to take his direction, when to my surprise, he fluttered up a little, and came down nearly as rapidly as I had thrown him up. When we then attempted to catch him, he endeavored to fly, but being unable to rise, he fluttered about, ran with his wings extended a few yards, and was easily taken. I presumed he might have been injured by confinement in the basket, so I made the same experiment with three others, the result being the same; proving that the rarity of the air was too great to admit of their supporting themselves. But the next day in descending we let them off about half way down between the Grands Mulets and the upper point of vegetation, and they took their courses directly for Chamonix, and were doubtless safely at home long before we reached the perpetual snow line.

After resting here twenty minutes, and previous to eating, the average pulsations and respirations of the whole party stood at 128 of the former and 30 of the latter per minute. Nothwithstanding the increase in the frequency of the respiratory action was much greater than natural, and increases as you ascend to the higher points of the mountain, I found none of those urgent symptoms mentioned by tourists, of difficult and laborious respiration, that is, during rest or repose, but even at this point, I found that the muscles became rapidly fatigued, and while in motion the respiration was accelerated, and consequently more or less difficult, but ceased to be oppressive after a few moments of rest, proving that the effect was due not to the rarity of the air, but the exercise in this rare atmosphere. The higher you ascend, the greater and greater is the inclination to rest and lassitude, and the power of muscular endurance is diminished almost to zero. The moment, however, you place yourself in the horizontal position, by lying on the snow, the muscles being at rest, you feel merely lassitude, but no fatigue, which returns almost immediately, on the muscles being again called into action. The most troublesome and annoying circumstances was the intense thirst, produced in part by the cutaneous transpiration, which was very abundant, in consequence of the fatigue produced by motion, and also by the peculiar condition of the atmosphere. As this thirst increases, the desire for food diminishes, until it becomes actually a loathing. This was experienced not only by myself, but to a great

[8] Carelli also took pigeons to the Grands Mulets on his ascent in 1843.

degree even by the guides, who at the Grand Mulets devoured the fattest kind of roasted and boiled meats with the greatest *goût*, but at the Grand Plateau cared for nothing more than the wing of a chicken, refusing positively the hearty meats, but swallowed with infinite satisfaction the Bordeaux wine which I had carried for my own use. The only beverage that had an agreeable taste to me, and which alleviated my thirst, was the *lemonade gazeuse*. Taking a small quantity of snow in my hand, I would saturate it with this liquid, and then allow it to dissolve in my mouth.

My two friends and myself chose the highest point of the Grand Mulets as our resting place for the night; but owing to its steepness, fearing lest we might, during sound sleep subsequent to the fatigue of the day, roll or slide down its side, we constructed with the loose stones from the crevices of the rock, a wall about ten feet long, and about two feet high in the center, and descending to one foot at its extremities, of a semilunar form, against which we were to place our feet. The larger stones were now removed, to make the foundations of our beds as smooth as the circumstances of the place would permit; we selected each one his place, and spread upon it his sheepskin, while a knapsack served the purpose of a pillow. I had just wrapped my blanket around me, as the sun was sinking below the horizon, throwing its lurid glare upon the snow-capped summits, which now above, below, and on either side, rose in close proximity, presenting a scene in which were mingled the beautiful and sublime, and more than repaying any lover of nature for the fatigue endured in obtaining the sight. I now prepared for sleep, but the novelty of the position, the deathlike stillness, and the events of the day crowding before my imagination precluded sleep, while the vast expanse of the blue arch of heaven, which was my canopy, studded with its myriads of scintillating lights, invited contemplation rather than repose.

I was not allowed long to enjoy this scene of tranquillity and silence, for the day had been one of excessive heat, and its effects began to be manifested by the fall of avalanches. Situated as the Grand Mulet are, about 10,000 ft. above the level of the sea, below the Grand Plateau, at two-thirds of the height of Mont Blanc, within 2500 ft. of the summit of the Aiguille de Midi, and projecting from the middle of the glacier, they stand as opponents to very many of the avalanches that fall from either of these elevated points. I had not lain more than twenty minutes, when I was aroused by a tremendous crash, while the entire rock still vibrated

from the concussion of the ponderous mass: as I sprang to my feet, and looked over the mountain side, by the light of the moon, which had just risen, making every object, though enlarged and softened, almost as distinct as noonday, this mass of snow and ice could be seen hurrying and rushing headlong in its course, till ground and broken by its own violence it settled down still and tranquil, thousands of feet below, amid the ever-moving glacier. They continued to fall for about one hour; at first the interval between was some ten minutes, then more frequently, till becoming less frequent, they ceased altogether, and universal stillness reigned once more, broken only now and then by what is termed the groanings of the Alps, which is the cracking of the ice among the glaciers.

The fall of the avalanches at this hour is caused by the effect of the sun (melting the ice) and at this high point it requires the whole force of the sun's rays during the entire day; the water thus produced runs down and forms pools about their base, which continues to melt there for some time after the sun has set, when one avalanche after another is dislodged, and beginning to fall, they continue until the water again congeals, which prevents any further descent until the following evening, when the same effect being again produced during the day by the same cause, their fall is again renewed. I once more prepared myself for sleep, but feeling no inclination that way, I amused myself in watching the constellations, which being immediately over me, were shining with peculiar brightness, and during the course of an hour or more that I was thus engaged, I observed slight flashes of light passing before my eyes, not unlike aurora borealis; and supposed it an optical illusion, probably caused by the glare from the sun and snow to which my eyes had been exposed during the day; but as they became more frequent, I satisfied myself that they were real. Rising and looking down in the direction of Chamonix, I discovered at once the cause, which was a thunder shower in the valley. The *sillons* (streaks) of electricity presented a beautiful sight, as they sported amid the dense clouds that overhung the village. There was none of that dazzling brightness presented by the lightning seen when below the cloud, but merely the red zigzag or forked lines, owing doubtless to the cloud being between us and the electric fluid. Although the lightning could be distinctly seen, we could not detect the slightest sound of thunder; whether this was caused by any peculiar condition of the atmosphere at the time, or by the rareness of the air, or our distance, or whether it is a constant phenomenon

here, I am unable to say. There was, however, much thunder in the valley, and some very heavy explosions, too, I was informed by the landlord on my return home next day.

We left the Grand Mulets between 2 and 3 o'clock, A.M., and arrived at the Grand Plateau between 8 and 9 o'clock. The view from this elevated point is almost boundless, and the whole extent of country for miles on every side (except that portion where the prospect is interrupted by the summit of Mont Blanc) extended itself far and wide, presenting the plains, mountains and lakes, as distinctly as if spread out upon a map before the eye. The Plateau is an almost level plain, with an area, I should judge, of 10 acres. The Roches Rouges are between this point and the summit. The clouds began very soon to rise from different points, and often obstructed view after view, so that to continue the ascent to the very summit, we deemed would be useless, as far as the prospect was concerned. This was now nearly or completely limited by the moving masses of cloud and vapor, as they rose from the valleys or hung pendulous on the mountain side; for a moment they were stationary, and then rising in undulating broken lines, they assumed a deeper and denser form, as expanding and spreading themselves through and beyond the various mountain passes, they extended as far as the eye could discern. They formed one great tumultuous ocean of clouds, whose ever-restless waves were driven impetuously along, lashing the mountain tops that still peered above their ragged surfaces, and which soon sank in the bosom of the rising vapor, till this vast, restless, rolling cloud, seemed to fill immensity.

We now hastened our descent, which was quickly and easily achieved in comparison with the toil of the ascent; as, in a few minutes, we slid down the snowy plains, which had taken hours of indefatigable effort to surmount. This was done by sitting on the summit of the plant to be descended, with the legs extended in front; then thrusting the Alpenstock in the snow a couple of feet, we depended upon a firm pressure on it to govern the velocity of the descent. Thus, continually repeating this novel kind of locomotion among the inclined snow plains, walking and leaping among the glaciers, jumping and scrambling among the rocks and pines, we arrived again safely at the hotel in Chamonix at about 8 o'clock in the evening, having been absent about forty hours.

A Survey of American Ascents in the Alps in the Nineteenth Century

PART II

Dr. B. L. Ball (1820-59), graduate of Harvard medical school in 1844, author of *Rambles in Eastern Asia* (1855) and *Three Days on the White Mountains* (1856),[1] was the first American of whom there is record as having made an ascent in the Alps, other than of Mont Blanc.

Dr. Ball was in Asia in 1848, 1849 and 1850, visiting the Alps on his way home from the East. In the second of his books one finds (p. 22) the following:

> . . . in crossing the Bernina Alps, had my companion and myself been discouraged by the depth of the snow . . ., we should have missed some of those beautiful landscapes so characteristic of Alpine scenery. If, against the protestations of the guides we had not persisted in climbing the snowy peak of a lofty group of mountains near Bains de Loeuk, in Switzerland, . . . we should have been deprived of one of the most striking and majestic panoramic views of nature in Europe.

It is possible that the peak in question was the Torrenthorn. In any event Dr. Ball's climb was but a few years after Forbes' ascent (1842) of the Stockhorn, according to Coolidge the earliest first ascent by a British subject.

We now record American ascents in the Alps, with the exception of Mont Blanc by Chamonix routes, which has been considered in Part I.

I. WESTERN ALPS

1. Maritime, Cottian, Dauphiné and Graian Groups

Punta dell' Argentera. W. A. B. Coolidge. August 18th, 1879. First ascent.

Monte Viso.[2] W. A. B. Coolidge. September 5th, 1879. Second ascent from N.

Barre des Ecrins. W. A. B. Coolidge. July 4, 1870. Third ascent.

Meije. W. A. B. Coolidge. June 28, 1870. First ascent of Pic Central.

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[1] *Appalachia,* xviii, 448.

[2] An attempt on the N. W. Face in 1851 is said to have been made by a Mr. Blake, of Boston (*Alpine Studies,* 49).

Meije. W. A. B. Coolidge. July 10, 1878. Second ascent of highest point.

Grand Paradiso. W. A. B. Coolidge. August 21st, 1885.

2. Pennines, Excepting Mont Blanc by Chamonix Routes

a. Chamonix District

Grandes Jorasses. W. A. B. Coolidge. July 13, 1869. Fourth ascent.

Mont Blanc. W. A. B. Coolidge. July 15, 1870. Second ascent by Brenva route.

Petit Dru. James Taylor Van Rensselaer. August 28th, 1884. Third ascent. With guides Eduard Cupelin and François Simond. He also ascended the Grand Dru, August 1st, 1884.

J. T. Van Rensselaer (1862-19?), of New York. Hobart College, N. Y.; New College, Oxford. Member of S. A. C. (1885); C. A. F. (1884); A. C. (1886). *Continental Times,* September 6th, 1884; *Schw. Alp. Ztg.,* ii, 191. List of expeditions, *S. A. C. J.,* xx, 614; *A. C. R.,* iii, 246.

b. Zermatt District

Col Théodule. July 25th, 1850. Theodore Winthrop. "From Saas by the Monte Moro, Col Türlow, Col d'Ollen, Betta Furka and Col Cervin—a circuit of four days." *A. J., 32,* 48.

Weissthor. August 13th, 1854. Mr. and Mrs. F. M. Tower, and Mr. F. F. Hyatt, New York. "On Saturday, August 12th, the party ascended the Weissthor and returned over the Stockhorn, Hothaligrat, Gorner Grat and Guglen to the Riffel-house. Mrs. Tower is the first lady who has been either at the Weissthor or the Stockhorn, or over the rough passage from the latter to the Hohthaligrat. Guide, Jean Baptiste Brantschen." *A. J., 32,* 54.

Col d'Herens. August 2nd, 1862. Giuseppe Robba, da Novara, and G. Fenwick Jones, Savannah, Confederate States, America. "We crossed the Col d'Erin on 31st July." *A. J., 32,* 52.

Alphubeljoch. September 2, 1867. Alvey August Adee (see under Monte Rosa), with Johann zum Taugwald. *A. J., 31,* 228.

"Johann zum Taugwald brought me over the Alphubeljoch today in 11 hours from Zermatt, including halts and an hour's detour to the

summit of La Garde du Col, south of the highest point of the pass—we came without a porter, both of us considering that functionary to be a useless, wine consuming incumbrance. Johann is a jolly good fellow, and came down the glissades in good style. I can conscientiously recommend him to all who want a good guide and an agreeable companion."

Riffelhorn. Two American travellers in August, 1873, while rolling stones from the summit, turned up a bronze spear-head. *A. J., 6,* 437.

Matterhorn. H. F. Montagnier, who knew William Whitewright Stuart (Mont Blanc list, No. 68), said that he ascended the Matterhorn in the late '60s, but this cannot be confirmed. Whymper's *Ascent of the Matterhorn* includes the following Americans:

12. G. B. Marke. September 2nd-3rd, 1868. Apparently the climber whose wife was killed on Mont Blanc, August 2nd, 1870. *A. J., 31,* 92.

"I ascended the Matterhorn on September 3 with Nicolas Knubel and Pierre Zurbriggen (Saas) as guides. Left Zermatt on September 2 at 9 A.M., and reached the chalet at 4.50 P.M. Started next day at 4.30 A.M., and after an exceedingly difficult and dangerous climb reached the summit at 7.15 A.M. Rested at the summit for five minutes and then descended with great difficulty to our chalet, which we reached at 12.45 P.M. We rested there an hour, and reached Zermatt at 5.50; then ascended immediately to the Riffel, which I reached in 1.35. The expedition is an exceedingly difficult one, requiring at least two guides for each traveller.

24. Miss Brevoort and W. A. B. Coolidge, with Nicholas Knubel. September 4th-5th, 1871. (Mont Blanc list, Nos. 38 and 53.) Traverse; *A. J., 5,* 277.

41. T. Alston Bishop. July 21st-22nd, 1873. (Mont Blanc list, Nos. 49 and 66.) Member of C. A. F. (1876) and A. C. (1871).

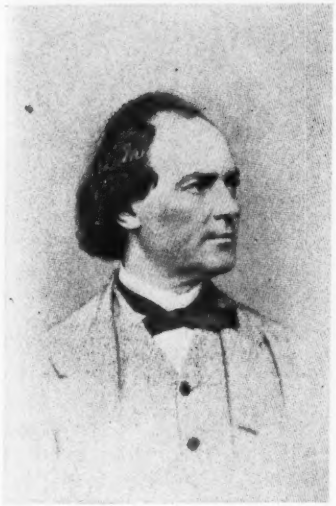
95. Dudley Leavitt Pickmann. August 12th, 1875. (Mont Blanc list, No. 94.)

102. Henry Remsen Whitehouse. August 23rd-24th, 1875. (Mont Blanc list, No. 97.)

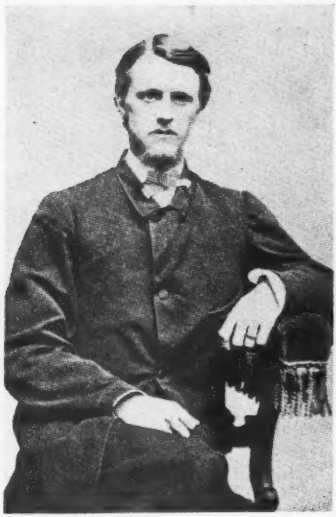
H. R. Whitehouse (1857-19?), of New York. Educated in England, Germany, Switzerland and U. S. A. Diplomatic Service, 1882-96. Member of C. A. F. (1878), S. A. C. (1875) and A. C. (1876). *A. C. R.,* ii, 359.

151. William Oxnard Moseley, Jr. August 24th, 1879. (Mont Blanc list, No. 82.) Killed during descent ("Moseley-platte").

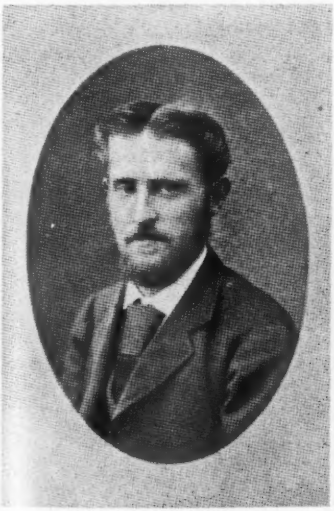
W. O. Moseley, Jr. (1848-74), of Boston. Pioneer in Eastern Alps. Member of A. C. (1877). *A. C. R.,* iii, 208.



JOHN EDWARD OWENS (1824-86)
American comedian; attempted Mont Blanc in 1852



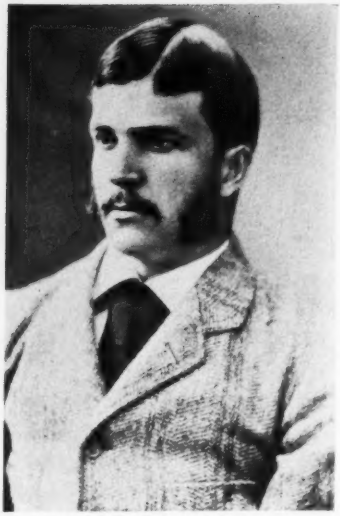
JAMES KENT STONE (1840-1921)
"Father Fidelis." The first American member of the A. C. (1860)



W. A. B. COOLIDGE (1850-1926)
"The young American who climbs with his aunt and his dog"

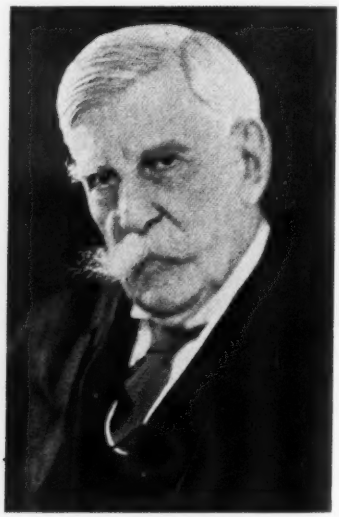
META CLAUDIA BREVOORT (1825-76)
Aunt of W. A. B. Coolidge, and the most accomplished woman climber of her time

JOHN WILKINSON (1840-91)
Mont Blanc and Monte Rosa with his brother in 1866



JOSEPH MICKLE FOX (1853-1918)
Ascended Mont Blanc in 1873

DR. JAMES BOURNE AYER (1848-1910)
Ascended Mont Blanc with Moseley in 1874



OLIVER WENDELL HOLMES
(1841-1935)
Ascents with Leslie Stephen in 1866

The following additional are from the *Führerbuch* of Peter Knubel:

1873. T. A. Bishop. (See above.)

1881. Bishop Henry W. Warren.

1892. John P. Bowman, Rochester, N. Y.

1900. H. P. Wells (15½) and Stanford Wells (18), sons of Wm. T. Wells of New York and Florida.

1902. Oliver Perry Smith. (For his ascent of N. wall of Kl. Zinne, August 16th, 1909, see *A. J., 25,* 80; *Ö. A. Z.,* 798.)

To the Matterhorn list may be added the following:

1885. August 10th. Melancthon M. Hurd, with his two sons. They had trained for a month in Tyrol, with ascents of Monte Cristallo and Gross Glockner, and had crossed the new Weissthor from Macugnaga to Zermatt with Clement Imseng and Joseph Lochmatter. *App.,* iv, 285.

Mr. R. M. Hurd contributes the following information: "My father, M. M. Hurd, my brother, G. A. Hurd, and myself spent five summers between 1880 and 1885 in pedestrian tours and mountain climbing. Although the roads were then not infested by automobiles we kept as far as possible to high level routes and covered from 800 to 1000 miles a summer. We carried moderate knapsacks and walked in Switzerland, Norway, the Pyrenees, with shorter trips in England, Scotland, Wales and Swabia. This was a period when pedestrianism was popular and high climbing was just beginning to develop. Walkers were mostly English or German, the English usually carrying light packs of ten pounds and covering perhaps forty miles a day, while the Germans carried forty-pound packs including an extra pair of hobnail shoes, and might only cover from ten to fifteen miles a day. In 1885 when my brother had nearly reached sixteen, we began to attempt some of the higher peaks, doing the Gross Glockner, Monte Cristallo, the new Weissthor, Riffelhorn, Cima di Jazzi, Breithorn and Matterhorn.

"For the Gross Glockner we had three skilful and experienced guides, and spent the first night in the hut close to the snow level. It seemed at that time difficult climbing, especially the crossing of the knife edge of snow between the two rocky peaks. We had good weather and an excellent view. We regretted to learn the following years that our three guides had been caught in bad weather in ascending the Gross Glockner and had perished. [The guides Christian Ranggetiner and Engelbert Rubesoier, of Kals, lost their lives in the Pallivicini accident on the Glocknerwand, June 26, 1886. *A. J., 13,* 110.—*Ed.*]

"Walking on to the Dolomites we climbed Monte Cristallo, a sheer piece of rock work, especially difficult for my brother owing to his short legs. How the Italian troops hauled artillery up Monte Cristallo during the war had always been a mystery to those who have climbed it.

"The new Weissthor was really new in those days, quite stiff and with beautiful views into Italy. While waiting for snow to melt on the Matterhorn we strengthened our legs with smaller peaks and

also by running from Zermatt up to the Gornergrat, a lift of 3000 ft., which we accomplished in one hour.

"The technique of climbing was doubtless simpler fifty years ago, but then as now chief reliance was placed upon the skill, experience and devotion of the splendid Swiss guides, particularly in teaching beginners. The equipment always included English Alpine Club rope, and heavy boots with clustered nails, always carefully repaired."

1887. G. A. Solly (*A. J., 47,* 245), in this year, records meeting on the Matterhorn a young American woman wearing *trousers!*

1895. M. Packett. Ascent mentioned in *Figaro,* July 19, 1895; *A. J., 17,* 523.

Monte Rosa:

1860. Dr. Luther Parks, Jr., of Boston, with Johann zum Taugwald. (Date not given.) *A. J., 31,* 226.

1860. J. E. Millard, David Pitcairn, Magdalen Coll., Oxford, and J. K. Stone of Harvard College, U. S. A. August 13. *A. J., 31,* 323. See also *P. P. G.,* ii, 379, where it is stated that Stone's companions were E. P. Prest and J. L. Propert, with guides Johann zum Taugwald, Moritz Andermatten and Simond (Pierre-Marie) of Chamonix, the party descending to Gressosey. Dr. Liveling and Leslie Stephen were on the mountain the same day, which may account for Stone's joining them in the Oberland (Blümlisalphorn).

1866. J. and D. P. Wilkinson (Mont Blanc list, Nos. 41, 42) with Peter Taugwald, Sr. and Jr.

John Wilkinson (1840-91), b. Syracuse, N. Y.; merchant. Beginning in 1865, spent two and a half years in European travel, accompanied by his brother. This information from his nephew, and from *Nat. Cyclopedia of Amer. Biogr.* (port.), ii, 202, where it is said "He is never without some engrossing pursuit."

Dudley P. Wilkinson (1843-1910); brother of John Wilkinson.

1867. T. A. Bishop. September 3rd.

1873. J. T. Van Rensselaer, with Peter Knubel.

1874. Alvey Augustus Adee, with Franz Weisshorn Biner. August 21st.

"Franz Weisshorn Biner took me up Monte Rosa yesterday, the 22d instant. My old opinion of his powers, formed seven years ago, has in no way diminished, and I cheerfully commend him to those who deem that a steady head, firm hand, and caution are good things in a guide."

A. A. Adee, of New York. Sec. of U. S. Legation at Madrid, 1870-77. Chief of Diplomatic Service Bureau in Washington, 1878.

In 1917 was second assistant Secretary of State, a post he had occupied since 1886. *A. J., 31, 259.* He was born in 1842.

Tucker Daland (Mont Blanc list, No. 89) accompanied the Dents in August, 1874, on a tour from Chamonix across the Col du Géant and the Col Théodule to Zermatt, followed by an ascent of Monte Rosa.

1875. William Williams (aet. 13), with his father.

1878. Thomas Johnston Homer, of Boston.

1881. Bishop Henry W. Warren (see under Matterhorn), with Peter Knubel.

1890. Abbott Lawrence Lowell (b. 1856; Harvard, 1877; later President). *App.*, xiv, 180.

1891. J. A. Fardey, of Boston, with Peter Knubel.

Zinal Rothhorn:

1874. T. A. Bishop, with Peter Knubel.

1882. June 24th. Frederick Hustings Chapin, with Joseph Imboden. Chapin had also ascended the Breithorn and Mont Blanc in 1877. *App.*, v, 38.

Dent Blanche: W. A. B. Coolidge. July 26th, 1870. Fifth ascent. F. J. Stevens and Charles E. Thompson, with Peter Knubel, in 1894.

Edwin Swift Balch (1856-1927; Harvard, 1878), of Philadelphia. Second ascent of Portienhorn (new route from S.) with Franz Burgener, June 26th, 1882. Second ascent of Nadelhorn, with Franz Burgener and Alois Anthamatten, June 29th-30th, 1882. In 1880 and 1882 he made tours in the Eastern Alps (which see) with A. J. Butler (A. C.) and the guides Spechtenhauser.

A. C. R., iii, 51; *A. J., 11,* 123; *Who's Who in America;* Balch, *Mountain Exploration* (1893), *Glacières or Freezing Caverns* (1900); *App.*, viii, 337.

Charles Francis Judson (1869-), of Philadelphia. M.D., U. of Pa., 1893. Made new route on Grand Combin, with Michel Genoud and Omer Balley, of Bourg St. Pierre, October 12th, 1890. *A. J., 15,* 444. Dr. Judson was for several years a pupil at Sillig's school, Vevey. His list of ascents (1888-92) includes, in addition, Col du Temple, Mont Gioberney, Dent du Midi, Rimpfischhorn, Monte Rosa, Piz Morteratsch, Tofana and Antelao.

II. CENTRAL ALPS

1. Bernese Oberland

An American party was led over Strahlegg by Melchior Bannholzer, September 1st, 1844. Desor, *Excursions,* ii, 153; *A. J., 17,* 119.

James Kent Stone (Mont Blanc list, No. 12)[2] was the first American to become a member of A. C. (1860). Mumm states that "his list of expeditions was by far the best up to that date." It includes the following:

Jungfrau. May 20th, 1860. With Pierre-Marie Simond, of Chamonix. *A. J., 32,* 225.

Blümlisalphorn. August 27th, 1860. With L. Stephen and Dr. Robt. Liveling. *A. J.,* i, 159, where Stephen speaks of him as "one of the very best walkers that it has ever been my good fortune to meet."

Oberaarhorn. September 15th, 1860. With Jeremiah Whipple, of Providence. *A. J., 32,* 240.

Oliver Wendell Holmes (1841-1935), of Boston. Harvard, 1861. Member of A. C. in 1866, making ascents with Leslie Stephen in that year. Mönch, July 12th, 1866. *A. C. R.,* ii, 192.

W. A. B. Coolidge ascended Finsteraarhorn September 5th, 1872, and Wetterhorn (first winter ascent), January 15, 1874.

Charles E. Rand (d. 1928; Mont Blanc list, No. 85) ascended Jungfrau on August 16th-17th, 1875, with his cousin, John Ritchie, Jr. (1853-), and made a number of additional ascents.

W. O. Moseley, Jr., made numerous ascents in the Oberland during 1878 and 1879.

Charles Walter Mead (1861-95), of Scarborough, N. Y. Oxford: B.A., 1886. Brother-in-law of Sir W. Abney. Member of A. C. in 1870. Made first winter ascent of Eiger, January 7, 1890. *A. C. R.,* iii, 196.

The death of Mr. Ribbons, an American, near Grindelwald, July 29th, 1890, though occurring on a glacier, was in no sense an

[2] Stone had ascended Mont Blanc in 1857 with his companion, A. M. Morrison, and they were probably the two Americans who went with Walters and Hinchliff to the Jardin on July 28th of the same year. (*A. C. R.,* i, 363.)

incident of what is commonly called a 'glacier expedition.' *A. J., 16,* 175.

2. Other Groups

Tödi. W. A. B. Coolidge. August 31st, 1876.

Piz Bevers. Charles Chauncey Binney (1855-1913; Harvard, 1878) and Edwin Swift Balch, both of Philadelphia, H. W. Seton-Karr (A. C.), with Christian Tüffli, made the first ascent of and named this peak, August 24, 1881. *A. J., 10,* 162; *Who's Who in America.*

Monte Rosa di Scerscen (Fuorcla-Scerscen-Bernina) from W., and first ascent of Piz Bernina by S.W. arête. William Williams, with Arpagaus and Schocher, of St. Moritz, August 12th, 1885. *A. J., 12,* 177.

William Williams (1862-), of New London and New York. Sillig's School, Vevey, 1873-6; Yale, 1884; Harvard, LL.B., 1888. Member of A. C. in 1882. *A. C. R.*, iii, 326.

No records of American ascents in the Lepontine, Albula or Silvretta groups has been discovered earlier than those of Coolidge: Monte Leone (July 17th, 1886); Piz Kesch (August 8th, 1895); Piz Linard (July 25th, 1895).

III. EASTERN ALPS

Ortler. W. O. Moseley, Jr. August 8th, 1874. E. S. Balch, with Johann Mazagg of Trafoi, in 1880.

Oetzthal Region. Various ascents by Moseley in August, 1876, including Hintere Schwarze, Kleinleitenjoch, Hochwilde (fifth ascent).

In 1880 and 1882, E. S. Balch (with A. J. Butler and the guides Spechtenhauser) crossed seven glacier passes of the district.

Brenta Region:

Adamello. W. A. B. Coolidge. September 7th, 1876.
Presanella. W. A. B. Coolidge. September 9th, 1876.
Cima Tosa. W. A. B. Coolidge. September 11th, 1876.

George A. Rudd, an American artist, left Ala for Bormio, September 14th, 1888, where he was to rejoin his

family on September 18th. He left the Bedole Hut at the foot of the Adamello, intending to cross the Passo di Presana to Ponte di Legno. No further traces have been found. There is a level glacier on the N. side of the pass where he may have perished. He was a member of the D. Ö. A. V. *A. J., 14,* 141.

Venediger. A Philadelphian (name unknown) ascended the mountain from the Johannishütte in 1868. Knorr, *Gross Venediger* (1932). E. S. Balch made an ascent with his brother in 1894.

Dolomites. Marmolata. W. A. B. Coolidge. September 26th, 1876. E. S. Balch was in the Dolomites with C. C. Binney in 1880, and in 1882 ascended Monte Civetta with Alessandro Lacedelli, and Grosse Zinne with Michel Innerkofler.

Southeastern Area. Hochalmspitze. C. C. Binney, of Philadelphia, with A. J. Butler (A. C.) and Joseph Gferer, of Mallnitz, August 14th, 1885. *A. J., 12,* 125.

Without further classification, ascents by future members of the American Alpine Club were made at early dates, among them being:

Benjamin S. Comstock. Piz Corvatsch, 1874.

Harry P. Nichols. Strahlegg Pass, 1878.

Harry Fielding Reid. Monte Rosa, Aig. du Goûter, Dent du Midi, 1880.

Henry L. Stimson. Cima di Jazzi, 1883.

Henry G. Bryant. Breithorn, 1886.

Ernest W. Brown. Wellenkuppe, Wetterhorn, 1888.

Mention should here be made of Philip Stanley Abbot (1867-95; Harvard, 1890; LL.B., 1893), a young member of the Appalachian Club, who met his death on Mt. Lefroy in the first fatal accident to occur in the Canadian Rocky Mountains. Abbot was in Switzerland during July and August, 1892, climbing with Peter Sarbach, their ascents including Wellenkuppe, Matterhorn, Monte Rosa, Zinal Rothhorn, Gabelhorn, Riffelhorn, Breithorn, Balfrinhorn, Weisshorn.

Other members of the Alpine Club (London), about whose climbing records there is no definite information, are the following:

Edmond Kelley (1851-1909); b. Toulouse; M.A., Columbia, 1870; (?) became U. S. citizen. Member of A. C. in 1890. *A. C. R.*, iii, 175.

Frederick Wallingford Whiteridge (1852-1916), of New Bedford. Amherst, 1874; A.M., 1877; Columbia, LL.B., 1878. Married daughter of Matthew Arnold. Special Ambassador to Spain in 1906 on the occasion of King Alfonso's marriage. Member of A. C. in 1884. *A. C. R.*, iii, 320; *A. J., 31,* 243.

Theodore Roosevelt was elected an Honorary Member of A. C. in 1887, after his qualification for active membership had been rejected. He was twenty-nine years of age at the time. Col. E. L. Strutt supplies the following information:

Extract from minutes of Committee Meeting, April 22, 1887.

Letter were read from Mr. E. N. Buxton proposing the Hon. Mr. T. Roosevelt of New York as a member of the Club. His mountaineering qualifications were considered insufficient and the Hon. Sec. was directed to find out more about a book mentioned by Mr. Buxton as written by the candidate.

Extract from minutes of Committee Meeting, December 7, 1887.

Mr. (now Sir George) Barnes read a letter from Mr. E. N. Buxton suggesting the election of Mr. Theodore Roosevelt as an Honorary Member of the Club. The Chairman read a letter from Professor Bryce to the same effect.

Mr. Barnes proposed and Mr. Blackstone seconded that Mr. Roosevelt be elected an Honorary Member of the Alpine Club. Carried *nem. con.*

Roosevelt ascended the Matterhorn August 3-4, 1881, when he was 23. He had also been up Pilatus and Jungfrau. *A. J., 21,* 2; *25,* 26, 39, 41, 59-60; *32,* 408; *34,* 36, 41; *App.,* xx, 558; *Letters from T. R. to Anna Roosevelt Cowles.*

Special mention should be made of Joseph Pennell, American artist, who illustrated Mummery's and other Alpine books, including his wife's *Over the Alps on a Bicycle* (1898), describing their trips, which she dedicated to members of the A. C.

The accomplishments of Miss Brevoort and her nephew, Rev. W. A. B. Coolidge, are detailed at length in other publications and cannot be brought further into this paper. Suffice it to say that Coolidge had the immense advantage of living abroad, as well as the vision and education which enabled him to achieve his tremen-

dous record of ascents, in addition to his unequaled contributions to Alpine literature.

Second only to Coolidge, among American mountaineers and historical writers, was Henry F. Montagnier (1877-1933), whose ascents cover a period of thirty years.

Summary

Analysis of the Mont Blanc ascents brings out some interesting facts. The accounts written by Howard and Van Rensselaer were the first printed descriptions in America of the ascent of an Alpine snow mountain. Dr. Grant's attempt was noteworthy because of his scientific observations at such an early date. The second complete ascent by an American (Talbot, 1854) was also by a physician, and by that time railroad construction on the Continent was well under way.

No American ascent was made in 1858 (1857 was a year of financial panic in the United States), but after that year American ascents are recorded in every season with the exception of the Civil War (1863-64) and Franco-Prussian War (1871) periods, when transportation difficulties brought American travel more or less to a standstill. After each of these periods, however, there was a new influx of tourists. Increasing numbers of Americans made the ascent in 1865 and 1872, the first party of the latter year celebrating Independence Day on the summit.

The publication of Part I (Mont Blanc) has already led to the identification of Lockwood (No. 26), Mr. Hamilton DeForest Lockwood, of Boston, writing as follows: "Hamilton Lockwood was my grandfather. His full name was Hamilton Davidson Lockwood and he was born in Providence in 1836 and died in Charlestown in 1875. He did not go to college. By occupation he was a manufacturer of rubber goods. The story of his ascent of Mont Blanc [1862] is rather amusing. He was a very strong man with the exception of a withered leg, which made him limp, and kept him out of the Civil War. I think he was engaged to grandma at the time, and she was also staying in Chamonix. There were a lot of Englishmen there who were taking their climbing very seriously, all dressed in the proper clothes, walking 25 miles a day, climbing the smaller mountains in preparation for attacking Mont Blanc. Grandfather finally got fed up with all this business and said he could climb the mountain himself, so he got some guides and did

it, though I believe he had to be dragged the last 100 yards or so. Somewhere I believe we have a certificate signed by the guides and the Mayor of Chamonix attesting to his ascent. When he got down the Englishmen gave him a ball, so I imagine he and grandma had a very good time. I think Mont Blanc was the only mountain he ever climbed."

In 1865 tourists were undeterred by news of the Matterhorn disaster. In this year, Miss Brevoort, aunt of W. A. B. Coolidge, the most accomplished woman climber of her time and a pioneer in winter ascents, was the first American woman to ascend Mont Blanc.

Properly speaking, there was no hut on the Grands Mulets until the Ancien Refuge was erected in 1853. Talbot appears to have been the first American to visit it. Larger buildings were set up in 1868, and enlarged in 1881 and 1896. The guideless (British) ascent of Hudson and Kennedy was made in 1855, but there is no certain record of an American guideless ascent prior to the solo climbs by Riegel in 1898, which ended in his death. The Bosses route came into use in 1859, ascents prior to this having been made by way either of the Ancien Passage or the Corridor.

In 1873, W. Elliot, an American, was on the mountain the same day as the party made up of Saussure's descendants, who were repeating the feat of their distinguished ancestor, accomplished almost a century earlier. Horace de Saussure was at this time but fourteen years of age. Charles Rand, who followed a year later, was but fifteen, the youngest American to reach the top. George Heard was the first American to reach the summit a second time (1855 and 1857).

Several ascents, not mentioned in Part I of this survey may here be added. Sir Francis Joseph Campbell (1832-1914), born at Winchester, Tenn., lost his eyesight when about four years old. After the Civil War he went to England and become a noted educator of the blind. He was a friend of John Tyndall, and ascended Mont Blanc in 1880, afterward becoming a fellow of the R. G. S. He was knighted in 1909. (*Dict. Amer. Biogr.; N. Y. Times,* June 30th, 1914.) His additional ascents include Jungfrau, Eiger and Matterhorn.

A. Lawrence Rotch, professor of Meteorology, Harvard, a member of the Appalachian Club, Hon. C. A. F., and an original member of A. A. C., made, during the '90s, five ascents to the Vallot observa-

tory in the interests of science, attaining the summit three times by various routes. (*App.*, x, 361.) There was also a large party of Bostonians on Mont Blanc in July, 1890. ('I. T. B., Jr.,' in letter to *Boston Transcript*.)

Americans have figured in three fatal accidents on Mont Blanc: Mrs. G. Marke (1870); Bean and Randall (1870); Riegel (1898). All of these were distinctly avoidable, although the latter has a modern "death or glory" touch.

Moseley's death on the Matterhorn (1879) was due to carelessness, while that of Mr. Ribbons in the Oberland (1892) and Mr. Rudd in the Adamello region (1888) were scarcely Alpine affairs.

The centers of the Pennine and Oberland groups (Chamonix, Zermatt and Grindelwald) accounted for much of the early American climbing; not until the '70s did they penetrate to districts further afield.

Many of the men mentioned had distinguished professional careers; of others we know nothing save their names. The list is by no means final, and additional information is desired. American mountaineers, interested in the history of their sport, may well take pride in the activities of their forerunners in the Alps.

CORRIGENDA

Part I

Page 362, line 14...for (Comte de Tilly) 1884, read 1834.
Page 362, line 4 from bottom...for 1836, read 1886.
Page 364, line 15...for tien, read lieu.
Page 370, line 16...delete bracketed sentence [? John Wilkinson (1821-91)...].
Page 373, line 11...for No. 51, read No. 49.

PROCEEDINGS OF THE CLUB

SECRETARY'S ANNUAL REPORT

The Club has resumed its steady growth, which was interrupted in 1934 for the first time since 1920. Our Honorary Member, Major-General A. W. Greeley died at the age of ninety-one in October. Three Active Members have also died—former President Henry B. de Villiers-Schwab, John R. Vanderlip and Professor Edmond S. Meany. Four members have resigned, and two have been dropped. Eighteen Active Members have been elected. There were thus at the end of the year eight Honorary (one less) and *222* Active Members (eight more), making a total of *229* (seven more than the year before), one, Dr. Workman, being carried in both categories.

Two meetings of the Board of Directors have been held during the year, on January 19th and October 19th.

The eleventh issue of the Triennial Club booklet containing the by-laws, names and addresses of members and other brief matter was published in May.

Another good issue of the Journal, the seventh, appeared in June under Dr. Thorington's editorship. Dr. Thorington has also assembled and published for the Club the important and unique book "Where the Clouds Can Go," the autobiography of Conrad Kain, an illustrated book of 456 pages, which was sent *gratis* to all members who requested it, this being made possible by members and others who subscribed to the cost of its publication. Good public sales of the book enabled Dr. Thorington to carry out his expressed hope of sending a substantial sum of money to Kain's mother in Austria. Another book, "Men Against the Clouds," an account of the ascent of Minya Konka, has been written by our members, Arthur B. Emmons, 3rd, and Richard L. Burdsall. "A List of Publications Relating to the Mountains of Alaska," prepared by Francis P. Farquhar, was printed in pamphlet form under the club's sponsorship and distributed *gratis* to members by kindness of Dr. Ladd.

At an informal dinner in New York on December 7th the Club had as its guest Mrs. Hettie Dyhrenfurth of Zurich who afterwards gave an illustrated account of the 1934 International Himalayan Expedition to the Karakorum, during which she reached an altitude of about 24,400 ft. on Queen Mary Peak, at the head of the Baltoro Glacier, the highest climb ever made by a woman.

In the field our members have continued to do important new work, particularly in Alaska, where the expeditions of Washburn and Wood were notable.

ANNUAL MEETING

The 33rd Annual Meeting of the Club was held at the Hotel Commodore, New York City, on January 18th, 1936, at 2.30 P.M. President Fisher presided and there were present about forty members. The minutes of the last Annual Meeting, the Secretary's report, and the Treasurer's report were read, and by vote approved and ordered filed.

The Librarian, Miss Helen I. Buck, told of visits made last fall to the libraries of the English, French and Belgian Alpine Clubs during which she had made a careful study of their arrangement and methods of handling, and otherwise gained information which she thought would be valuable to us.

For the Publication Committee Dr. Thorington reported that material for the 1936 Journal was in press. He said that the Kain book had been so well received that sales had come up to expectations, and that there would probably be foreign editions.

Mr. Howard Palmer read a resolution on our late President, Henry B. de Villiers-Schwab, which was adopted by a rising vote, and ordered to be spread on the records of the club, and a copy to be sent to his family.

For the Nominating Committee Dr. Andrew J. Gilmour reported the renomination of Councillors Thomas D. Cabot and W. B. Osgood Field, Jr., for another term of three years each, which report was confirmed by vote.

The Secretary read a letter of greeting from Mr. Arthur O. Wheeler, Honorary President of the Alpine Club of Canada, and a telegram from Messrs. Huber and Farquhar. Professor Peabody made a motion, which was carried, instructing the Secretary

to write and extend greetings through Messrs. Huber and Farquhar to our western members, and good wishes for the success of Mr. Bestor Robinson's next attempt on Mt. Waddington.

Mr. Fisher read a letter from Mr. F. M. Fryxell concerning the offer by members of the Rockefeller family of certain free land to be added to the Grand Teton National Park, which offer the government had not yet acted upon. Informal statements were made by Mr. Fuller and others, who are acquainted with the situation, to the effect that politics have been behind the delayed action on the matter. A resolution was presented by Mr. Gilman as follows: "Resolved, that the American Alpine Club heartily urges the enlargement of the Grand Teton National Park to include those northern portions of the Jackson Hole Country which have been offered without charge to the Government, for such Park purposes." This was unanimously adopted, and the Secretary instructed to send copies to certain government officials and members of Congress having jurisdiction.

A resolution of thanks to the officers and members of the several committees for their work during the year was moved by Mr. Cromwell and carried.

The meeting adjourned at 3.10 P.M.

Mr. Walter A. Wood told with moving pictures of his expedition to Alaska last summer into the mountains of the main range west of Kluane Lake. The objects of the expedition included the mapping of this unsurveyed country by ground control and aerial photography, as well as the actual ascent of one or more high peaks. Mt. Steele, 16,640 ft., was climbed by Messrs. Walter and Harrison Wood with the guide Hans Fuhrer. Photographs from the summit showed Mt. Logan and the nearby Mt. Lucania.

Miss Georgia Engelhard showed slides and described various climbs in the Alps, particularly on some of the difficult rock peaks in the Engelhörner near Rosenlaui.

Mr. Henry S. Hall, Jr., told with slides of ascents in Africa last summer, including Mont-aux-Sources in the Drakensberg, Kilimanjaro, and Niragongo, the latter an active volcano 100 miles southwest of Ruwenzori in Belgian Congo.

ANNUAL DINNER

The Annual Dinner the same evening at the Hotel Commodore was attended by 106 members and guests, President Fisher presiding.

Mr. Ansel E. Adams of San Francisco being present, was called upon, and after conveying greetings from our Pacific Coast members spoke briefly about some of the attractions of the Sierras, and expressed the hope that more of our eastern members would be able to visit that fine part of the country in the future.

Mr. Eaton Cromwell talked with excellent slides of some of the classic climbs in the Alps, dwelling particularly on the several routes on Piz Roseg in the Bernina Group, the Jungfrau, and the Matterhorn, with photographs from almost every possible angle.

Mr. Bradford Washburn completed the evening with an account of the National Geographic Society Yukon Expedition which he led in the St. Elias Range, from February to June, 1935. Fine moving pictures and many superb still colored slides, with the speaker's interesting narrative of the progress of the expedition, at times divided into two or more parties, gave the audience a vivid impression of this, one of the last extensive, unknown high mountain regions of North America. Their primary purpose was reconnaissance and mapping rather than the making of actual mountain ascents. The south end of the Mt. Logan massif was seen and photographed for the first time, from the air, and close-up views of Mts. St. Elias, Vancouver, Hubbard, Alverstone, and numerous previously unknown peaks, were all shown, either for the first time, or from entirely new angles.

Moving pictures of the party flying from Carcross to the newly discovered and named Lowell Glacier with supplies and dog teams, camps on the glacier, work with the dogs in relaying, climbing to occupy survey stations, and the foot journey across the range to Yakutat Bay, were all shown. Mr. Washburn is again to be congratulated on his manner of conducting the expedition, and especially for the high degree of excellence of his photographic record of it.

HENRY S. HALL, JR.,
Secretary.

REPORT OF THE TREASURER

Receipts		*Disbursements*	
Dues	$1,640.00	Rent, light, etc.	$1,205.63
Interest	509.76	Postage and printing	218.74
Dinner (net)	65.57	Insurance	48.60
Guide Book sale	20.25	Membership list	99.84
Library books sale	18.00	A. A. J.—gross $582.82	
Contribution, Dr. Bridgland	25.00	Less receipts 107.50	
Profit, sale 2 bonds	415.98		475.32
1934 income received 1935	71.25	N. Y. Public Library in full	200.00
		Appropriation for library purchases	185.89
	$2,765.81		$2,434.02
		Surplus for year	$ 331.79

Balance	1/1/35	12/31/35
General a/c, Chase Nat'l Bank	$ 757.33	$ 1,374.77*
Whymper Fund (Brooklyn Savings Bank)	192.86	197.46
Reserve Fund (Brooklyn Savings Bank)	1,595.19	1,154.59*
Library Fund (Brooklyn Savings Bank)	993.78	1,372.91*
Club House Fund (Brooklyn Savings Bank)	2,844.45	1,005.08*
Securities	10,387.05	11,997.64
	$16,770.66	$17,102.45
Surplus for year	331.79	
	$17,102.45	

* On 12/31/35, there were $1,615.39 funds of Club House Fund temporarily deposited in other funds ($615.39 in General a/c, $500 in Reserve Fund and $500 in Library Fund) because the Brooklyn Savings Bank will only accept a deposit of $500 in each account each quarter. These will be transferred during the year 1936.

List of Securities 12/31/35	*Cost*
1 M. Nor. Pac. P. L. 4	$ 866.36
1 M. Sou. Pac. S. F. T. 4	829.61
3 M. U. S. A. 4's '44	3,310.00
G'teed Mtge. Ctf. B. & M. Co.	3,000.00
G'teed Mtge. Ctf. Lawyers M. Co.	3,000.00
10 General Gas & Elec. 6% Pfd.	991.67
	$11,997.64

Comment.—The surplus of $331.79 is the largest in the Club's history, notwithstanding a substantial appropriation to the Library and payment of the entire balance due the New York Public Library. This surplus is due in part to the resumption of interest payments on the 6000 guaranteed mortgages and to the profit on two bonds sold in 1935 as well as to every committee keeping well within the budget, particularly the Journal. We have a somewhat larger profit on another two railroad bonds, not yet sold, but the Club should recognize that, to the extent of profits on securities, such income is non-recurrent. It is felt that the finances of the

Club, with the increasing membership and the increasing sales of the Journal, its lower rent for rooms, and the very liquid condition of its assets, are on a reasonably solid basis and the Club can continue its activities satisfactorily. For next year's budget, I submit the following:

Income		*Expenses*	
Dues	$1,700.00	Rent, etc.	$1,100.00
Interest	500.00	Postage and printing	250.00
Books sold	50.00	A. A. J.	650.00
		Library	150.00
		Reserve for contingencies	100.00
	$2,250.00		$2,250.00

FRANK N. WATERMAN,
Treasurer.

REPORT OF THE LIBRARIAN

The total number of books in the library (without including duplicates in the Lending Library and those for sale) is now 2514. Last year we received 94 additional books from Mr. Schwab's estate, 35 from Dr. Thorington, and 25 from various members and publishers. From Mr. Schwab's estate we also received 126 duplicate books, many unbound journals, a large collection of slides, maps and mountain souvenirs. Dr. Ladd and Dr. Thorington also contributed many unbound journals and pamphlets. Framed pictures donated by Mr. Field and Dr. Thorington were added to the library, also an exhibit case given by Dr. Thorington.

The library committee spent for supplies and binding $102.55; for bookcases and permanent fixtures $83.34; total cost, $185.89. We received from sale of duplicates and guide books $38.25. Net cost for operating the library $147.64.

At the council meeting, January 18th, 1936, regulations for the use of the books in the library were adopted for one year. Copies of these regulations have been placed in each of the Club rooms. No books from the Lending Library are to be sent by mail.

A list of duplicates for sale will be mailed to any member upon application addressed to the Librarian. Prices have been reduced for members and those who purchase their mountaineering books from the club will thereby materially assist in the much-needed increase of the library fund.

HELEN I. BUCK,
Librarian.

MINUTE

From the Records of the American Alpine Club
Adopted at the Annual Meeting, New York City, January 18, 1936

The American Alpine Club assembled at its Annual Meeting, misses profoundly its former President, Henry B. de Villiers Schwab and with deepest sorrow directs the following minute to be spread upon its records and communicated to his family.

Enthusiastic and unremitting devotion to the Club was an outstanding characteristic of Henry Schwab. From the day of his joining in 1921 until he surrendered the reins of the presidency at our 1935 Annual Meeting, the American Alpine Club was always prominent in his thoughts. He possessed an unusual talent for organization and thoroughness in whatever he undertook and of this the Club was the grateful beneficiary during his terms as Secretary (1926-1929) and as President (1932-1935). In the latter, many important advances were brought about in the operations of the Club; the By-laws were modernized, a new home for the Club was opened and increased fraternalism among members was promoted by the initiation of a series of informal meetings and dinners, during the fall and winter months, in various cities from Boston to the Pacific Coast. These have not only enriched the Club life but have stimulated mountaineering as well and bid fair to become permanent features.

Of like importance to American mountaineering was the Association of American Members of the British Alpine Club, a group which Mr. Schwab had organized before he knew of the existence of our Club and which he conducted most capably for seven years. This association was the means of bringing into our ranks four or five of our most esteemed and valuable members including our late President himself.

It is with utmost sadness that we recall these things today. It is eminently proper that we should inscribe upon the Club records our keen sense of personal loss in his passing and our admiration for him as a man and a true mountaineer.

HOWARD PALMER,
Committee.

In Memoriam

EDMOND STEPHEN MEANY
1862-1935

Edmond Stephen Meany was born in East Saginaw, Michigan, December 28, 1862. He died in Seattle, Washington, April 22nd, 1935.

Few men, in the span of a single life, contribute broadly to widely divergent fields of human knowledge, and at the same time, influence vitally thousands of human lives. Those who knew Professor Meany best could never fully understand where he found the time or the energy to enter so generously into the whole intellectual life and the human activities of the Pacific Northwest. That he did so truly do this must have come from the eternal zest of high purpose, which, with his splendid physical strength, his remarkable mental depth and endurance, and his high courage, enabled him to work cheerfully onward when lesser men would have been forced to pause and rest. To the last hour of his great life of service Professor Meany contributed the boon of inspired leadership.

In 1919 Professor Meany climbed Mount Baker, his last of the six major peaks of Washington. Through unavoidable delay his party of eight was unable to complete the descent before darkness. From Grouse Ridge to Heliotrope camp were blind trails that required careful scouting. In the time of waiting, urged by the rest of the party, Professor Meany did something that he seldom did. He indulged in reminiscence.

His story that black night was an interesting cross-section of the history of the State of Washington. He told of his work as a newsboy on the streets of early Seattle, his promotion to a milk route, later newspaper reporting, the city editorship, a "Master's Degree" at the University of Wisconsin, history teaching in the University of Washington, promotion to executive head of the Department of History in 1897, the founding of *The Washing Historical Quarterly* in 1906 and his activities as managing editor, his work with Boy Scouts, Pioneers, The Mountaineers, his two terms in the first Legislatures of Washington, his bill in the Legislature to establish the University of Washington, his first book, and other more intimate details of pioneer life. The story was told

simply, with the humility that attends greatness of purpose and with pride in the great reaches of his own Northwest. Those of us who spent those fascinating hours of a windswept night on the high shoulder of Mount Baker have lived to see sixteen years of service added to round out and enhance the greatness of the life well spent.

A bibliography of the authorship of Edmond S. Meany consists of over 500 items, among which are: Twenty-eight books and pamphlets, general; eleven laws and codes; five articles on historical geography; thirty-five articles on general history topics of the research type; thirty-three books and articles on state history; forty-six articles on pioneering; eighteen books and articles on the Indian; thirteen books and articles on mountaineering; fourteen books and articles on natural history.

Illustrative of the many honors conferred upon Professor Meany that cannot be told in detail, is the fact that colleges and historical societies have proven their appreciation by bestowing highest honors, and that, in his later years, France conferred upon him the degree of Chevalier of the Legion of Honor.

In all these busy years Professor Meany was the ideal devotee of the out-doors and the high mountains, president of The Mountaineers for twenty-seven years, he never missed one of the club's summer outings. His membership in The American Alpine Club was ever cherished with loyal appreciation.

The mountains have lost a great and understanding advocate and a faithful follower of the high trails. But through the permanency of inherited leadership, and the deathless message of the printed word, Edmond Stephen Meany will ever be with us in the mountains that he loved.

J. T. H.

ADOLPHUS WASHINGTON GREELY
1844-1935

General Greely, Arctic explorer, an Honorary Member of the American Alpine Club, was born in Newburyport, Mass., March 27th, 1844, and died in Walter Reed Hospital, Washington, on October 20th, 1935.

He enlisted as a private in the 19th Massachusetts volunteer infantry, serving in the Civil War from 1861 to 1865, being wounded twice at Antietam and once at Fredericksburg. He entered the regular army as a second lieutenant in 1867, and was

appointed to the signal corps. In accordance with recommendations of the International Geographical Congress of 1879, for the establishment of circumpolar stations, Greely was placed in charge of an Arctic expedition in 1881, making headquarters for two years at Discovery Harbor, Grinnell Land. From this base the farthest north attained up to that date, 83° 24′ was attained. Returning, he reached Cape Sabine under great hazards, and during the winter 1883 lost, through cold and famine, all but seven of his twenty-five companions. Two rescue expeditions failed, but relief, led by Com. Winfield S. Schley, reached them in June, 1884.

The Founder's Medal of the R. G. S., and the Roquette Medal of the Société de Géographie (Paris) were awarded to Greely, and he was promoted to the rank of captain. In 1887 he became chief signal officer, with the rank of brigadier-general. In the years that followed he aided the development of the insular and Alaskan territory of the United States, building many of the cable and telegraph lines. Less than a year before his death, the Congress of the United States voted him its Medal of Honor for his leadership in the expedition of 1881, one of the three awards of this decoration for non-combative service.

BOOK REVIEWS

The Romance of Mountaineering, by R. L. G. Irving. 8 vo.; ix + 320 pages, with 41 illustrations, maps and diagrams. London: J. M. Dent & Sons, 1935. Price 18s.

Contemplation of mountains—of their climbers and of their effects upon men (and particularly upon the author in the course of a long experience), is the general theme of this book. The style is philosophical, subjective and occasionally critical, or, perhaps we should say, provocative. At all events, the book has evoked lengthy reviews in most of the mountaineering journals, where its obvious merits have received due recognition.

We propose to limit ourselves here to comment on the author's strictures against Americans and American mountaineering, which must seriously mar the book for readers on this side of the Atlantic. Had the attack not been so deliberate, we would have preferred to ignore it, but the author expects "a cry of protest from any American who reads it," and we hereby register such a cry, though in all friendliness.

We protest not because any shafts have found a weakness in our armor, but in sorrow that a fellow craftsman, cradled in the land of "sweetness and light" could find so little of either in our make-up. In his tilting with the windmills of our present-day alpinism (which intelligent people know differs from that practiced in the Alps) one senses his suspicion that Indians may still be prowling around the streets of Chicago after dark, or at least that their tomahawks constitute a real menace to the frontiersman. Space will not permit a detailed refutation of his sallies which, after all, involve mainly a question of taste, but we may observe in passing that without any personal acquaintance with our mountains, he presumes to assay the essence of our climbing and pronounce it dross.

[The author's standard of good taste may be judged by the reference to the loss of a brave mountaineer (page 93), *not* while he was climbing for sport, but while he was camping for a week in a dangerous place for the sole purpose of securing observations on cosmic rays. Even personal experience with an Alpine tragedy seems not to have liberalized the author's disposition towards such occurrences.]

As regards his slur on "the American records of big mountaineering adventure" we can only express our conviction that the author has never participated in a serious enterprise of this kind, such as Logan, Fairweather, McKinley or Foraker.[1] He seems to forget that no time record is sought to be made on virgin peaks of this type. We can picture him, while climbing one of them, calling a halt with the words: "Well, boys, let's rest and enjoy the sunset. We may not reach the camp, but if we freeze here, at least our obituaries will record that we died true mountaineers—we will have done our quota of contemplation." And he might aptly continue with a quotation from his book, page 221. "We have halted longer on the summit and on the way down than any party in America has been known to do, and I think that the era of new adventure in American mountaineering has begun." Frankly, at this point in his reading, the reviewer's hands raised themselves automatically in supplication.

Later, upon resuming perusal of the text, we discovered a warm eulogy of John Muir and a lively ridicule of Clarence King, based on passages in his book of essays, *Mountaineering in the Sierra Nevada,* written and published about 1870 when he was in his late twenties. We welcome this citation, if only as refutation of our author's fiat that Americans are venal creatures, sadly deficient in romantic tendencies and that their mountain literature is of the same description. In King we find romance galore—romantic adventure, romantically portrayed, and done, too, in the pioneer era when our author pictures us as wallowing in intensive acquisition under the motto "Time is money." King climbed Mt. Tyndall in 1864, a dozen years before there was any organized mountaineering club in America. No one nowadays treats his youthful exuberance from a serious mountaineering standpoint. He was primarily an able geologist; also a noted *raconteur,* much sought after in cultured circles in New York. We Americans know that it is the rare literary charm of his *stories* that keeps his work alive and in demand down to the present day. One wonders how any reader who has perused the later portions of King's book, could

[1] That such a mountaineer as T. Graham Brown does not dismiss Alaskan peaks or American companions lightly will be seen by his enthusiastic papers in *A. J., 47* (Nos. 250, 251). We venture to add Minya Konka to the list of recent American ascents in which "Hollywood" has played no part.—Ed.

withhold tribute to the masterly passages of prose description which grace it. The author's commendation of John Muir stands out in these rather acrid pages as an agreeable oasis. We are not convinced, however, that Muir, great and admirable as he was, will, or should, be adopted as the prototype for American climbers.

Mr. Irving's entire discussion of American mountaineering literature gives strong ground for suspecting that he has but dabbled in it to find fodder for his intransigency. His appears to be a bad case that only a stiff dose of further reading, preferably in our later books, will cure and we venture to prescribe Wilcox's *Rocky Mountains of Canada* and Thorington's *Glittering Mountains of Canada*.[2] These we can assure him from personal knowledge were not written in Hollywood (mentioned in the text) where many of his notions about us seem to have arisen.

In conclusion we venture the prediction that American mountaineering will continue to follow evolutionary principles normal to our land and that the lessons of the hills will continue to be salutary, regenerative and wholesome. We hope and believe that they have broadened our horizons and inculcated a sound and benign spirit of international comity (particularly towards fellow mountaineers of other countries) which will preclude any American from sponsoring literary disparagements of his brethren wherever they may live.

H. P.

[The editor is in full accord with the present reviewer, and feels it desirable to conclude with opinion from a British source (G. W. Y. in *Lonsdale* "Mountaineering")—"We have enough to do to play out the game safely and fairly against our own chosen mountain difficulties; and, if we have not, we should seek out harder climbs. . . We can only make the perilous game more dangerous, as well as vulgar, if we add to our hazards that of climbing competitively against other nations or climbers, or of hearkening to distracting public comparisons."]

Climbing Days, by Dorothy Pilley (Mrs. I. A. Richards). 340 pages, 69 illustrations, and index. London: G. Bell and Sons, Ltd., 1935. Price 16s.

Mrs. Richards says she started writing this book in China, far from her beloved Alps and homesick for them; she wanted to recapture the "feel" of all that makes up Alpine climbing, and to pass it on to her readers. In this aim she has succeeded admirably.

[2] Howard Palmer's *Mountaineering and Exploration in the Selkirks* should certainly be added to this tonic.—Ed.

We climb with her. The story is one not only of great climbs accomplished—although there is plenty of that, of course, including the magnificent north ridge of the Dent Blanche—but the other sides are in, too, the smaller climbs that you always do when the weather is not suitable for big things, and even the trips up to the huts that, perforce, go no farther. Sights, smells, sounds, all the graphic details bring out the picture so clearly. A description of bread and cheese after a long and exhausting climb was so vivid that a longing for that bread and cheese swept through me—it was minutes later before I realized that I had just finished an adequate dinner.

The workings of the climber's mind are there, too—for instance, the night before a serious climb "that queer dishonest half-hope of broken weather."

The book covers climbing experiences in the Alps of Switzerland, France, and Italy, with an Easter trip to Corsica, and two trips to the Pyrenees. The first hundred pages—much the least interesting part—are devoted to minute descriptions of climbing in the British Isles, while ten later pages cover Christmas at Mürren, climbing in the High Tatra, and a two-year tour of the world, with climbing in Canada, the United States, Japan and the Himalayas. At first glance this seems curiously unbalanced, but I rather suspect that this volume is in reality but *part* of Mrs. Richards' "climbing days," and that subsequent volumes will cover these other regions. I happen to know that the diaries are voluminous! At the A. C. C. camp in 1925 long after everyone was in bed, Mrs. Richards' light would be going, and she would write to within an hour or two of starting to climb again the next morning. No doubt it is this immediate writing of fresh impressions that makes the book so graphic and such a joy to the climbing reader.

The illustrations are excellent and well reproduced (I speak of the English edition, not having seen the American). Quite a considerable portion of those of Alpine regions are professional photographs that we have seen before; still, they are always striking.

There are a few slight errors—or perhaps they are better called differences of opinion. Americans do not call crampons "creepers," creepers being something different again. Mts. Baker and Shuksan are not in the Coast Range, but in the Cascades. Arctic explorers tell us that to rub frost-bitten hands "hard and long with snow" is

about the worst treatment. And on the earth-shaking question of the proper clothing for feminine climbers, Mrs. Richards' views and mine are as far apart as the poles! These and similar trivialities, however, do nothing to detract from the excellence of the book, and I heartily recommend it to all as a very good substitute for being in the act of climbing.

M. E. U.

Round Mystery Mountain, by Sir Norman Watson and E. J. King. xii + 246 pages, 32 illustrations and 3 maps. London: Edward Arnold & Co., 1935. Price 15s.

Here is an enjoyable book, not pretending to be serious record of a scientific expedition, but rather the narrative of a journey undertaken in the spirit of an adventure, but with an entirely worthwhile purpose. After reading it one feels that the participants must have been well satisfied with the result of their trip, the principal object of which was to make the first high altitude crossing of the Coast Range of British Columbia in winter, on ski. Ski, however, played a minor rôle, saving perhaps one day of time on the Franklin Glacier, but no doubt adding greatly to the pleasure of those concerned. The party did no pioneering, as regards route finding, but when one realizes that they were all unfamiliar, both with the terrain and with the methods of western mountain travel, except for a very brief earlier visit by the leader in summer, one must credit them with a definite accomplishment. There are good illustrations, sketch maps, and an itinerary at the end (valuable in such a book), and an index.

The leader and backer, Sir Norman J. Watson, was fortunate in his choice of the professional members of the party, Emile Couttet of Chamonix for the mountain work, and the local men, Pete McCormick and assistants, for the approach. Weather seems to have been favorable much of the time. One member of the party was, we understand, greatly concerned with the supposed proximity of "ferocious" wild animals, but then for him, and perhaps even for the other uninitiated, that must have greatly heightened the sense of adventure!

The crossing of the Coast Range took just one month from Tatla Lake on March 18th to the head of Knight Inlet on April 19th, 1934. The actual crossing from the tongue of Scimitar Glacier on

the east, to the Franklin tongue on the west took, after two weeks of preparation on the east side of Fury Gap, only three days and two nights. However, as one foreign reviewer of this book seems not to have gathered from the narrative, the skiing was but the climax of this adventure, and not as the sub-title of the book suggests, the daily routine.

The book is written not without a sense of humor. The authors, one feels, perhaps somewhat overrate in their own minds the importance of what they have accomplished, but the special dispatches to the London *Times,* referred to, are possibly more responsible for this feeling than the book itself. There is a freshness and thrill in the point of view, which can only be felt and expressed by people to whom such an experience is new. If there is therefore at times slight exaggeration one may just smile, because in this case it was all honestly intended. There is throughout the book the rather quaint viewpoint of the Englishman of 50 years ago out for a great adventure. Much is told for the benefit of a European reader which we might think unnecessary, but then it is the intimate details which entertain the average reader anyway, not the heavy facts. In other words, if one reads this book in the proper frame of mind, it is well worth while for the adequate and pleasing picture which it gives of the experiences of such a party. Certain that it does give a fair record and impression of a trip through that country. Only one other book, and that from a big-game hunter's point of view, has appeared on the Coast Range.

H. S. H., Jr.

60 Centuries of Skiing, by Charles M. Dudley. 202 pages, with numerous illustrations. Brattleboro, Vermont: Stephen Daye Press, 1935. Price $3.00.

This volume, which is charmingly and profusely illustrated, is by no means a text book, but as one will imagine from the title, a compendium of the history and a discussion of the present state of the art of ski running. It is indeed a surprise to learn how ancient is this means of conveyance across snow-covered lands, and equally surprising to discover how widespread today are the ramifications of the sport, which would appear to be almost as universal as tennis. Perhaps the most useful part of the book to expert and

novice alike is that describing the various districts, both at home and abroad, from the ski running standpoint. In this connection it is perhaps proper to remark that the Visp-Zermatt Railway was electrified some four or five years ago, and is now operated throughout the winter, so that the latter town may be readily attained at any time during the season (p. 171).

The enthusiast will find interesting the full description of the various "schools" of skiing, and there is an authoritative discussion of the differing techniques and the influence of the local terrain upon their development and past history. The book closes with a table of racing results and jumping records, and a useful and compendious bibliography.

E. C.

Mountaineering on the Sierra Nevada, by Clarence King. Edited and with a preface by Francis P. Farquhar. 8 vo.; 320 pages, 8 illustrations. New York: W. W. Norton & Co., Inc., 1935. Price $3.50.

The material of this book, first appearing in 1871 as a series of articles in the *Atlantic Monthly,* was followed in book form by many successive editions.

With the aid of a suitable preface, minor text changes, sparingly used footnotes and a few superb, oversize illustrations, the editor of the present edition, himself an authority on the Sierra Nevada, has skilfully accomplished his purpose of indicating "the relationship between this book and the scene as viewed by the visitor of the present day." This edition stimulates discussion of the following questions: (1) Was Clarence King, in spite of his distinguished pioneering achievements in the High Sierras, a chronic tenderfoot, the type of which is occasionally seen in other walks of life? (2) Could the average mountaineer of today have avoided King's faculty of making mistakes in exploration if he were handicapped with yesterday's lack of mountaineering knowledge and equipment? The editor's plea for latitude is convincing, although it is difficult to withhold an affirmative vote to the first question when contemplating King's feat of climbing Mt. Langley by mistake when in quest of Mt. Whitney, 5 miles distant, after having started from a nearby known point at the eastern foot of the range.

L. I. G.

Handbook of Travel. Prepared for the Harvard Travellers' Club. Edited by George Cheever Shattuck. Second edition, revised and enlarged. 510 pages. Cambridge: Harvard University Press, 1935.

Unstinted praise is due to the Harvard Travellers' Club for its enterprise in bringing out this new and enlarged edition of the "Handbook," first published in 1917 and long out of print. Its purpose is to afford the prospective traveller a wide range of up-to-date information while planning his expedition and to provide a compact *vade mecum* for use in the field. It is a composite of some thirty articles written by thirty-nine authors, all of whom are Americans, comprised under four general headings: Methods of Travel (163 pages); Camping (64 pages); Recording and Collating (158 pages); Hygiene, Medicine and Surgery (110 pages). In scope it is world-wide, embracing the tropical, polar and Asiatic fields. Space will allow citation of only a few of the special topics covered: the use of aeroplanes and automobiles in exploratory work, travel with dromedaries and llamas, outboard motors, poisonous and edible plants, camp cooking, foods, photography (42 pages) and anthropology (26 pages).

The section on mountaineering summarizes the fundamentals of the craft and comprises the only primer of this kind in American literature.

One cannot forbear comparing the "Handbook" with its English equivalent, "Hints to Travellers," published by the Royal Geographical Society in two volumes and widely known and used by explorers for the past forty years. The two works are, in great measure, complementary, the English publication being more detailed in mathematical formulæ, logarithmic tables, etc., while the present book predominates perhaps in the vitally practical information the traveller needs in advance of his field work. Both cull out from the lore of many diverse sciences, the facts most pertinent to the explorer.

The volume is compact in format, well printed and indexed and exceedingly readable. It should be included in the kit of every big-game hunter, camper and traveller in the far places of the earth.

H. P.

[To the reviewer, Mr. Palmer, goes the credit for the admirable section on mountaineering.—Ed.]

Grill, genannt Kederbacher, by Fritz Schmitt. 243 pages, with illustrations. Munich: Bergverlag Rudolf Rother, 1935. Price RM. 3.80.

Der Sepp, by Karl Springenschmid. 361 pages. Munich: Bergverlag Rudolf Rother, 1935. Price RM. 6.

Junger Mensch im Gebirg, by Leo Maduschka. xvi + 206 pages, with 48 illustrations. Munich: Gesellschaft Alpiner Bücherfreunde, 1936. Price RM. 4.80.

Three inspiring biographies, appearing within a year, are of exceptional interest to readers of German, and add to that small group of books which hold the psychology and activity of the professional and the amateur in relation to mountain sport.

Johann Grill (Kederbacher), held in affectionate memory by as competent a mountaineer as Captain Farrar, would have been 100 years old had he been alive on October 22, 1935. He died in 1917 at his birthplace in the Bavarian Ramsau. Belonging to the period of classical alpinism, he was reckoned among the greatest guides of his day. His knowledge of the limestone Alps, especially the Watzmann district, was then unequalled, and, in addition, he had visited all major groups of the Eastern Alps. Kaindl, Pöschl, Purtscheller and Blodig are among the famous names to be found in his *Führerbuch.* His tours in the late '70s included journeys to Switzerland, with first experience on the 4000-m. peaks. He knew the Oberland and the Pennine groups from end to end, and led to the top of Piz Bernina by a new route of his own selection. In August, 1883, he spent a night with Farrar in a trying bivouac on the Zinal wall of the Weisshorn—"I never saw him show any trace of anxiety. He was coolness itself."

As Karl Schmitt has chosen to write of Grill in lively, romantic style, so also has Karl Springenschmid in his life of Sepp Innerkofler—*Der Sepp.* In all of Alpine history there is scarcely a figure more compelling to the imagination that this little man of the Dolomites, who laid down his life so gallantly in the Paternkofel attack of 1915. It is a thrilling drama unfolded, set off with touches of splendid humor, among which the tales told by old Michel Innerkofler are unequalled by anyone before Conrad Kain. There are great spirits at rest in the little cemetery of Sexten.

Leo Maduschka (1908-32), a young Munich climber, perished in a storm on the N.W. wall of the Civetta. He was a poet and

a mountaineer of the modern school, the counterpart of Georg Winkler. The chronicle of his short life, edited by his friend, Walter Schmidkunz, is the seventeenth publication of the Gesellschaft Alpiner Bücherfreunde, and is superbly illustrated.

J. M. T.

Le Terrain de Jeu de l'Europe, by Leslie Stephen, translated by Claire-Eliane Engel. 8 vo., wrappers, 268 pages, with two illustrations. Paris: Victor Attinger, 1935. Price, Fr. 6.50; bound, Fr. 9.50.

Under the inclusive title of "Montagne" this is the third of a series of Alpine classics now appearing for the first time in French translation. The earlier volumes were Charles Gos' *Alpinisme Anecdotique* and Mazotti's *Dernières victoires au Cervin.* Now one receives Leslie Stephen's "Playground," admirably translated by Mlle Engel, whose researches in Alpine history are well known.

Frederic Harrison once said that "The Alps were to Leslie Stephen the elixir of life, a revelation, a religion." It is the summing up of the intellectual qualities which make his book of such perennial charm, a subtle blending of realism and mysticism that struck a new and inimitable note in Alpine writing. The list of his notable ascents begins in 1858 and continues to 1877. He was first to conquer the Bietschhorn, the Schreckhorn, the Jungfrau from Roththal, the Zinal Rothhorn, and Mont Mallet—to mention only a few of the outstanding peaks in his pioneering. He was born in 1832, and Oliver Wendell Holmes, who climbed with him in 1866, died in 1935.

It is a good lesson for English-speaking mountaineers! Why cannot we have such translations? Splendid things such as "The Matterhorn" and "Peaks and Precipices" are, to be sure, at hand. But who will give us "Paccard wider Mont Blanc" and "Simler," or Carl Egger's "Aiguilles," or Rickmers' "Querschnitt," or Rambert's "Murmelthier," or Schuster's "Weisse Berge"? The Germans do these things well through the flourishing Gesellschaft Alpiner Bücherfreunde.

"Le Terrain de Jeu"—for once the French language fails for a compact equivalent. But may their mountaineers thrill in reading in their own language of this playground, even as we have with the original.

J. M. T.

Alexandre Calame, edited by A. Schreiber-Favre. 52 pages, with 75 photo-engravings, 4 heliochromes, 8 polychromes, and lithograph-portrait of the artist. Preface by Charles Gos. Geneva, 1934.

Alexandre Calame was born in Geneva in 1810. A true Romantic, he turned to Nature—with a capital 'N'—for inspiration. When he went, as young man, to study in Paris, he met with instant success, was recognized in the Salons, carrying off not only first prizes, but also the Cross of the Legion of Honor.

Strangely enough, to us at least, the Classic painters had considered that mountains as scenery were horribly ugly. The Romanticists were the first to open men's eyes to the beauties of the hills. Calame had few forerunners in this particular field. He was one of the founders of the national (Genevese) school of painting. Historically, Geneva had just been delivered from occupation by the French troops on the one hand, and the Austrians on the other. The major part of Calame's paintings were consecrated to Alpine scenery. His favorite subject is the tumbling torrent, milky with foam, cascading between great rocks and flanked by rugged pines—trees which he treated after the manner of Ruysdael. One might criticize his work as being too meticulous, too theatrical. But he was master of lithography and etching, arts which had been at that time practically abandoned by painters in Paris. Art was to him a religion, what a modern art critic would call "a weak escape from life." But, if he did not make a photographic portrait of well-known peaks, even if he did not deal in the stark expressionism of today, his works represent rather the glorification of light and shadow, of a landscape dreamed and composed like a symphony.

G. I. F.-G.

Voyage de Saussure hors des Alpes, by Charles Gos. 8 vo.; pp. 144, with nine illustrations from contemporary prints and portraits. Neuchatel and Paris: Attinger, 1935. Price Fr. 3.75.

Turning his back on the glaciers of Chamonix, and upon the Alps, a man, with barometer in hand and geological hammer in his pocket, is descending pensively toward the Italian plain: it is H.-B. de Saussure, the famous scientist of Geneva, the man of Mont Blanc. But this time Saussure is not equipped for the mountains. Marc-

Auguste Pictet accompanies him, and the two friends are on their way toward Mediterranean horizons.

Attracted by this picturesque account, Charles Gos has chosen to follow the gentleman-mountaineer through his wanderings on this flatland. He does so with much humor, relating the many adventures which befell the author of *Voyages dans les Alpes* in Italy, on the Riviera and in Provence—from Geneva to Geneva, on foot, on horseback and by coach—thinking always, as one would expect, of nothing else than his beloved white mountain.

J. M. T.

Alpinistes d'Autrefois: Le Major Roger et son barometre, by Claire-Eliane Engel. 8 vo.; pp. 212, with eight illustrations. Neuchatel and Paris: Attinger, 1935.

Alexandre Roger was born at Geneva in 1780 and lived until 1867, spending most of his life as an officer of the Swiss army in the making of barometric observations throughout the Alps. We are indebted for his biography to Miss Engel, who discovered transcriptions of his journals in the library of the late H. F. Montagnier.

The journeys described continued, with brief intermissions, from 1811 until 1839, and cover the mountain chain from the Tarentaise to the Grisons. Major Roger was content to measure rather than to climb, and he attached as much importance to his repast as to his route. When a high mountain forced itself into his scientific preoccupation, he records the ascents that have been made. He was one of the first, after Saussure and Ramond, to note the different stages in the crossing of a col, the traverse of a glacier, and the ascent of snow-clad rocks. He venerated Ramond and hated Elie de Beaumont—he was not impartial, but he is generally amusing.

The book is illustrated from an interesting series of contemporary prints.

J. M. T.

VARIOUS NOTES

Wyoming Rockies

Teton Range

The 1935 season in the Tetons was exceptional because of the number of ascents made and the original character of some of the climbs. One after another new routes were completed, including one on the Grand Teton, three on previously neglected Mount Moran, and several on other major and minor peaks. Return of Ranger Phil D. Smith and Guide Paul Petzoldt go far to explain this renewed activity.

Climbing began on June 16th with an ascent of Teewinot by Norman Dale and Malcolm Smith, and apparently closed in early October with ascents of the Grand Teton on the 4th by Dwight Stone and J. C. Dewey, and of Buck Mountain on the 6th by Malcolm Smith and Phil D. Smith. But at this writing comes word of a much later climb, an ascent of the Grand Teton on December 19th by the brothers Paul and Eldon Petzoldt and Fred Brown, important as affording a test of early winter conditions on the peak. According to Paul Petzoldt the mountain proved wind-swept and free of ice, the conditions encountered being but little more difficult than those of summer. The traditional route was followed, but so free of snow was the southwest ridge that it too could have been used. The climb afforded a striking instance of temperature inversion, it being 5° above zero on the summit when it was 26° below zero at Jenny Lake, at the base of the peak.

This ascent, like the winter expedition made into the high Teton country two years ago by Rangers Allyn Hanks and Dudley Hayden, affords convincing evidence of the suitability of the Tetons for winter trips, at least during the earlier months of the season. It has long been recognized that climbing could continue weeks and even months later than it has, mountaineering having usually stopped in September or October simply because by that time the climbers have departed. Question as to the advisability of encouraging climbing during the first three or four months of the year still exists, since this is the period in which the heavy snowfall comes and brings to all the Jackson Hole country avalanche hazards that in the past have proven too costly of life to be ignored.

To summarize the 1935 season, the record comprises 119 ascents in all, distributed over 22 peaks including three unnamed summits in the north end of the range not previously climbed. Most of the significant peaks came in for attention, the Grand Teton and Teewinot as usual heading the list, with 41 and 13 ascents, respectively. Following is a list furnished by Phil D. Smith of those ascents that involved new routes:

The Grand Teton (August 2nd) by Wm. F. Loomis and Paul Petzoldt. Ascent by southeast face below Otter's Body; descent by east ridge. (This was the second descent of the peak by any route other than the traditional one.)

Mount Owen (August 28th) by H. K. Hartline, A. Curtis Smith, and Paul Petzoldt. Ascent by traverse from East Spur to chimney near north ridge; descent by north side route.

Mount Moran (June 30th) by Phil D. Smith and Eldon Petzoldt. Ascent by south ridge.

Mount Moran (August 26th) by H. K. Hartline and Paul Petzoldt. Ascent by west ridge.

Mount Moran (September 8) by Malcolm Smith. Ascent and descent both by north side, to right of the easterly of the Triple Glaciers.

Teewinot (July 26th) by W. F. Loomis. Ascent by right couloir and chimney on northeast face.

Rolling Thunder (in August, exact date not on record) by T. F. Murphy. Ascent from west.

Rockchuck Peak (August 20th) by Floyd Wilson and Phil D. Smith. Ascent by west face.

Rock of Ages (July 23rd) by Herman Petzoldt, Paul Petzoldt, and Phil D. Smith. Ascent by northwest corner and face; descent to south and around to Lake of the Crags.

Buck Mountain (October 6th) by Malcolm Smith and Phil D. Smith. Ascent by south face and ridge.

Mount Wister (July 6th) by Malcolm Smith. Both ascent and descent by southeast side, slightly to west of earlier route by Phil D. Smith.

Nez Percé (July 21st) by Malcolm Smith. Ascent by southeast face.

Nameless 12,000-ft. summit two miles west of Mt. Moran (August 26th) by H. K. Hartline and Paul Petzoldt. Ascent by southwest side; from summit traversed eastward to summit of Mt. Moran.

The first ascents were as follows:

Summit two miles up Leigh Canyon, on north side (July 26th) by Dan Webster, Edward Lorenz, and Paul and Eldon Petzoldt. Ascent from south; descent by northwest side.

Two summits north of Waterfalls Canyon (July 29th) by Allyn Hanks, Phil D. Smith, and F. M. Fryxell. These were climbed on an east-to-west traverse of the ridge north of Waterfalls Canyon.

Mention should also be made of the third ascent of the Grand Teton by the east ridge. This was made on August 12th by Elizabeth Cowles, Glen Exum, and Paul Petzoldt. The description of this climb, which involved variations from the route of the two previous ascents, has been recently published in *Trail and Timberline*. Noteworthy also is the record of Malcolm Smith,

who climbed nine of the major peaks, making solo ascents on six of them and not a few new routes.

F. M. F.

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Colorado Climbing Notes, 1935

Though perhaps not quite so brilliant as the 1933 and 1934 seasons, the 1935 climbing season in Colorado witnessed some important work and several first ascents. Mountaineers were again active in the San Juan, and of even more interest was the Gore Range Outing of the Colorado Mountain Club. The following outline gives a partial account of the 1935 climbing activities in Colorado.

Centrally located in Colorado, the sturdy summits of the Gore Range have, even since the early days of Hagerman and Clark, enticed the attention of the state's more restive climbers. Even so, the central portion of the Gore remained, by virtue of its unaccessibleness, essentially virgin mountaineering territory. In August, 1935, the Colorado Mountain Club was successful, through the efforts of the leaders, Everett Long and Charles Moore, in establishing a climber's camp in the upper valley of Black Creek in the heart of the Gore Range. From this camp the following climbs were accomplished: August 13, Peak "L" (13,193), second ascent, Charles Moore and party; August 13, Peak "G" (13,274), first ascent, Stanley Midgely, Clifton Snively, Maxwell Mery and Pete Alexander; August 13, Peak "F" (13,200), first ascent, same party; August 14, The Elephant (12,732), first ascent, Stanley Midgely, Don McBride, Clifton Snively and Everett Long; August 15, Peak "K," first ascent, Everett Long, Carl Blaurock and party; August 15, Peak "J" (12,921), first ascent, same party; August 17, Mt. Powell, Carl Blaurock, Rudolph Johnson and party; August 17, Peak "P," first ascent, Bob Lewis, Fred and John Nagel, and Gene Schaetzel; August 17, Peak "J," second ascent, same party; August 18, Peak "H," possible second ascent, Don McBride, Carleton C. Long and party; August 21, Peak "D," first ascent, Fred Nagel, Bob Thallon, Gene Schaetzel and Bob Blair; August 21, Peak "E," first ascent, same party; August 22, Mt. Powell, Charles Moore and party. This last party brought back the original records of Major Powell's first ascent with Ned Farrell in 1868 and his second with members of the Hayden Survey in 1873. These and later records have been turned over to the State Historical Society.

In addition to the ascents listed, Peaks "M" and "N" and Little Powell were visited several times, and two more ascents of The Elephant were made.

The gradually mounting interst which led to this year's successful establishment of a comfortable climber's camp in the heart of the Gore may be said to have been fathered by Kenneth Seger-

strom of the United States Geological Survey. Long an ardent mountaineer, Mr. Segerstrom has for several years been especially interested in the mountaineering possibilities offered by the Gore Range and has made several exploratory trips into this mountain fastness. The published accounts of these trips led directly to the present interest in the Gore.

The Needle Mountains were visited in August by another San Juan Mountaineers' party. Camp was established in Ruby Basin above Ruby Lake. The climbing party, consisting of Prof. H. L. McClintock, Frank McClintock and Lewis Giesecke, investigated both north and south from Ruby Canyon. The second summit of the Index was attained by a flanking movement, rappelling around a corner of rock to get into a crevice not available from below. The ultimate pinnacle of the Index remains unscaled even after this, the second, attempt. The repulsed party reports that there are at least two routes available which will yield to a group of climbers having sufficient time at their disposal.

The same SJM party completed a successful first ascent of Monitor Peak and made a second ascent and traverse of Pigeon Peak. Monitor was ascended from the southwest, the first portion of the route lying somewhat along that selected for the first ascent (1934) of La Montaña de las Animas Perdidas. Pigeon was ascended by the north face and ridge and descended by the chimney between the east and south cliffs. The descent to the Pigeon-Turret col offered some spectacular work.

On August 17 Kenneth Segerstrom made the first ascent and traverse of the eastern or higher summit of Rolling Mountain in the Ice Lake Basin area. On September 8th Harry Kane and Kenneth Segerstrom made first ascents of the two highest pinnacles of Three Needles Peak, an interesting, gendarme-studded ridge lying between Bridal Veil and Mineral Creeks in the Telluride quadrangle. The third or lowest pinnacle of the group appears to be practicably unscalable.

Chimney Peak on Cimarron Ridge in the Uncompahgre country was ascended for the second time. The party (Joe Buswell, Floyd Griffiths) was led by T. Melvin Griffiths who, in 1934, made the first ascent. The south face and chimney route was again employed. Severe weather conditions made the descent treacherous.

A Note on Climbing in New Mexico

[The following note was communicated to the writer by Kenneth Segerstrom of the United States Geological Survey.]

"The highest New Mexican range offers no rock climbing to speak of. The Sangre de Cristos lose their rugged character south of the Colorado line and while they remain high for eighty

miles, their summits and ridges are like much of the Colorado Cordillera—sloping rather than craggy. I have climbed practically all the major peaks, and only on Truchas and Lake Peak did I find the going even mildly interesting. I conclude, therefore, that the best climbs in New Mexico are the lower ones, including: (1) the Organs; (2) the rock aiguilles on the west face of the Sandia Mountains; (3) the volcanic necks (a half dozen or more) between Mt. Taylor and the Jemez Mountains; (4) several isolated mesas in western New Mexico, including Inscription Rock and Enchanted Mesa; (5) the monoliths and shiprock-like formations in the Navajo country; (6) canyon climbs throughout the state, particularly in the Chaco country of the West and the limestone Guadalupe Mountains of the south part of New Mexico.

Mr. Segerstrom states that even the more difficult summits he has reached have borne evidence of prior ascents, indicating that at least *some* technical climbing has been done in New Mexico.

CARLETON C. LONG.

CASCADE RANGE

Mt. Rainier. On January 12th, 1936, Delmar Fadden of Seattle, an Eagle Scout, started on a solo ascent of Mt. Rainier from the north. This summit has never been climbed in January which is the poorest time of year for such an enterprise. A week later when his brother came in to get him, he had not returned, so a rescue party was immediately organized by park rangers. As he had used bamboo markers the trail was easy to follow. His skis and food were found near the base from whence he had proceeded on snowshoes with dehydrated food. At 12,000 ft. two markers were found but a storm forbade further advance. An airplane reconnaissance reported snowshoe tracks at 13,000 ft. ending in an avalanche with no continuation beyond. A second rescue party, driven back by furious storms, was likewise unsuccessful. Finally another airplane reconnaissance disclosed the body as lying on the Northeast slopes of Emmons Glacier, at an altitude of 13,000 ft.

On February 1st, a new party set out, and in spite of a high wind and intense cold, about 40° below zero, recovered the body which had to be chopped from the ice. The crampon on the left foot was missing, which was probably either the cause or result of the fall, but which, can never be ascertained. Films in the camera which had been taken at the top indicated that Fadden had reached the summit and had slipped on his way down. The fall was apparently not serious but the climber was probably rendered unconscious and froze. Thus, once again, the danger of solo climbing, especially in winter is forcibly brought out.

Alaska

Yukon Expedition

The National Geographic Society's Yukon Expedition, led by Bradford Washburn of Cambridge, Massachusetts, in the spring of 1935, erased from the map of the world by aerial photography, about 2000 square miles of southwestern Yukon Territory. Travelling by dog team, the party made land surveys also of a vast area.

The expedition left Seattle, Washington, in February, 1935, set up its first base camp 150 miles west of Carcross and then began the surveys. Much time was saved for the expedition by the airplane, from which members of the expedition made studies of routes to be taken. The airplane also transported supplies for advanced camps from the expedition base. In one instance the plane flew in nine minutes to a camp that it took the explorers 16 days to reach by dog team.

The crossing afoot for the first time of the St. Elias Range near the border of Alaska and the Yukon was one of the expedition's outstanding feats that tested the stamina of the men. Several immense new mountain peaks were discovered while en route over this range and their positions located with surveying instruments. At one time, the expedition carried cameras and surveying instruments to a height of more than 12,000 ft. on Mt. Hubbard and set up the highest surveying station ever occupied in Canada or Alaska. Two newly discovered peaks were named for King George V and Queen Mary in honor of their silver jubilee year. For this, King George, through the British Secretary of State for Foreign Affairs, expressed his sincere appreciation of the compliment which the National Geographic Society Yukon Expedition paid His Majesty and the Queen.

Members of the expedition besides Washburn were: Robert H. Bates, Philadelphia, Pennsylvania; Hartness Beardsley, Springfield, Vermont; Adams Carter, West Newton, Massachusetts; Andrew M. Taylor, Ottawa, Canada. Robert Randall of Prince Albert, Saskatchewan, was the pilot of the expedition's ski-equipped airplane. A full account of the expedition appears in this issue of the Journal.

Alaskan Glacier Expedition 1935

Many of the glaciers of the Alaskan coast were visited during the summer of 1935 by an expedition in charge of Prof. Wm. S. Cooper of the University of Minnesota and the writer, with Russell Dow and Robert Stix of Dartmouth College as assistants. Detailed observations were made in Glacier Bay, Prince William Sound, and Tracy and Endicott Arms of Holkham Bay, as well as a cursory examination of some of the glaciers of the lower Copper

River and those situated along the route of the Alaska Railroad on the Kenai Peninsula. It is still too soon to record the results obtained so that only the general nature of the work accomplished will be mentioned together with a few notes to indicate such changes as have occurred recently in the various ice fronts.

Glacier Bay. This expedition was Prof. Cooper's fourth to this locality, the previous ones having been made in 1916, 1921, and 1929, while the writer had been there once before in 1926.[1] Both of us continued our series of observations of the glaciers and the positions of the various ice-fronts. Prof. Cooper also extended his botanical and ecological observations of the growth of vegetation in front of the retreating glaciers as well as the detailed study of such interglacial forests as are exposed to view.

All the ice-fronts were visited and their present positions relative to those noted in the past were observed and recorded by photography and in some cases by triangulation. Soundings were also made in all the principal inlets so that the main features of the submarine contours of the whole of Glacier Bay are now known. An airplane flight was also made over the bay during which photographs were taken of all the principal glaciers.

In general it may be said that the snowfields at low altitudes are shrinking and in some cases rapidly wasting away. The ice streams issuing from higher levels, however, show little change. The observations of the termini of the various glaciers may be summarized as follows: all the glaciers of Geikie and Hugh Miller Inlets are retreating, some very much more than others; Reid Glacier is retreating, but the Lamplugh Glacier issuing from the same snowfield is advancing; the Johns Hopkins Glacier is unchanged since 1926, but the hanging glaciers of the inlet show a surprising divergence in behavior with evidence in two instances of considerable advance since 1929; Margerie Glacier has not changed; Grand Pacific Glacier apparently advanced between 1926 and 1931, but has since retreated; Rendu Glacier has advanced but is no longer tidal; Carroll Glacier has retreated; and all the glaciers and snowfields bordering on Muir Inlet have shrunk, while Muir Glacier itself has retreated about a half-mile since 1929.

[1] Cooper, William S. *The Recent Ecological History of Glacier Bay, Alaska. Ecology,* Vol. iv, No. 2, April, 1923, pp. 93-128; No. 3, July, 1923, pp. 223-246; No. 4, October, 1923, pp. 355-365.

Cooper, William S. *A Third Expedition to Glacier Bay, Alaska. Ecology,* Vol. xii, No. 1, January, 1931, pp. 61-95.

Field, W. Osgood. *The Fairweather Range: Mountaineering and Glacier Studies. Appalachia,* December, 1926, pp. 1-13.

Prince William Sound. This was a new locality for all in the party except the writer who had visited the glaciers of the northern inlets in 1931.[2] All these were revisited in 1935 and the work was extended to the glaciers on the western side of the sound which had not been carefully studied for twenty-five years.[3] A number of the inlets and ice-fronts were triangulated and the many photographic stations in these inlets were occupied. These observations were further augmented by air pictures taken on a flight over most of the ice tongues. Soundings were also made in a number of localities where either none had been previously recorded, or where the submarine topography had shown evidence of recent change.

In general the termini of the large glaciers were found to be unchanged or advancing while the termini of the small glaciers and those issuing from low level snowfields were mostly in a state of retreat. Starting with Valdez Glacier and proceeding westward along the north side of the Sound, the conditions of the termini of the principal glaciers in relation to the observations made in 1931 were as follows: Valdez Glacier, continued retreat; Shoup Glacier, no change; Columbia Glacier, advance on all parts of the terminus; Meares Glacier, no change; Yale Glacier, advance of part of the terminus; Harvard Glacier, small advance; Smith, Vassar and Wellesley Glaciers, little change; Bryn Mawr Glacier, in part advanced; Barry Glacier, unchanged on most of the terminus, but advanced on the west side; Cascade, Serpentine and Surprise Glaciers, unchanged; Baker Glacier, advanced; Harriman Glacier, advanced; Dirty Glacier, retreat; and Roaring and Wedge Glaciers, unchanged. The glaciers of the west side of Prince William Sound had not been studied since 1910. The relative changes in the termini since that time were as follows: glaciers of Portage Bay, retreat; glaciers of Blackstone Bay, mostly unchanged; Tebenkof Glacier, retreat; glaciers of Port Nellie Juan, retreat; Princeton Glacier, retreat; Chenega Glacier, unchanged; Tiger's Tail Glacier, unchanged; and Tiger Glacier, probably slightly advanced.

Holkham Bay. A brief visit was made to the glaciers of Tracy and Endicott Arms of Holkham Bay by Russell Dow and the writer. The position of the termini relative to the observations of 1929 were as follows: Sumdum Glacier has retreated; North and South Sawyer Glaciers appear unchanged; North Dawes Glacier

[2] Field, W. Osgood, Jr. *The Glaciers of the Northern Part of Prince William Sound, Alaska. The Geographical Review,* Vol. xxii, No. 3, July, 1932, pp. 361-388. And *The Mountains and Glaciers of Prince William Sound, Alaska. American Alpine Journal,* Vol. i, No. 4, 1932, pp. 445-458.

[3] Tarr, Ralph Stockman, and Lawrence Martin, *Alaskan Glacier Studies,* National Geographic Society, Washington, 1914. Pp. 351-380.

has retreated; South Dawes Glacier is probably unchanged; and Brown Glacier has retreated.

Summary. The problem of the oscillations of the Alaskan glaciers is still far from being adequately solved. More observations at periodic intervals are essential. However, since detailed records are available in the case of some glaciers for over fifty years, the time is approaching when the relative importance of the different factors involved may be determined with some precision, and the means by which glaciers respond to slight changes in climate will be better understood. This in turn will shed light on the problems connected with the broader aspects of the nature of climatic fluctuations.

WM. OSGOOD FIELD, JR.

ROCKY MOUNTAINS OF CANADA

Conrad Kain's Ascents of Mt. Robson. In a letter from Kain to a friend in Austria, received too late to be included in his book, he states in regard to his 1924 ascents: "In two weeks I have ascended Mt. Robson four times." His round-trip times from the timber-line camp were as follows: first, 26 hrs.; second, 23 hrs.; third, 17 hrs.; fourth, 15 hrs. This information is not in the records of the A. C. C. One must add Kain's first ascent and traverse of the mountain, July 31, 1913, and his almost successful attempt from the S. S. W. a few days later, making a total of five complete and one incomplete ascents.

It may here be noted that the sale of *Where The Clouds Can Go* has yielded a profit to date of approximately $350, most of which has been sent on an installment basis to Kain's mother. Foreign editions of the book are expected, an agreement having been made whereby a part of any profits will be turned over to Mrs. Kain. A small sum has been reserved and will be used in connection with several foreign subscriptions to secure and place a suitable bronze memorial on the Raxalpe, near Kain's old home. It is expected that Sektion Reichenau (D. Ö. A. V.) will assist in a brief ceremony to be held in the autumn of this year.

ALPS

Mont Blanc Sesquicentennial. This August will mark the 150th anniversary of the most important event in the history of mountaineering, for it was on the 8th and 9th of August, in 1786, that Dr. Michel Gabriel Paccard and Jacques Balmat, of Chamonix, succeeded in reaching the summit of Mount Blanc. This event really marks the beginning of mountaineering as we know it today, for although climbing, even rock climbing, is mentioned in antiquity,

it was not until these two men first showed that the highest mountain in the Alps was vulnerable to human attack, that we find more than a few desultory climbers.

These two men, one of them a scientist, succeeded in climbing what was then considered an extremely great height, and thereby opened up a new field of scientific research which, combined with the growth of travel and outdoor recreation, led to the present development of mountaineering. Although it was de Saussure who spurred on the attempts upon the mountain, it was these two men who opened the way for de Saussure's own successful climb of the following year. Thus this event can be looked upon as the true beginning of mountain climbing as we know it today.

♠

Grandes Jorasses; North Face. The tremendous Mer-de-Glace face of this mountain was finally conquered this past summer, after a siege lasting many years.

"On the 28th and 29th of June two German climbers, Rudolf Peters and Martin Meier, accomplished this feat under considerable difficulty. When they first arrived on the 26th, a spell of eight days of warm weather had melted off most of the snow and loosened the stones. The rocks were wet and avalanches were nearly continuous, so a delay of several days for cooler weather was made. The ascent was commenced at 2.30 on the afternoon of June 28th, but in spite of cooler weather they were thoroughly soaked from the wet climbing when they bivouacked at 6.00 p.m. A rock avalanche during the night destroyed their cooking utensils. During the next day's climbing they were surprised by a stonefall on a steep ice face; Meier was hit on the head and knocked out. Luckily he was held on the rope and came to quickly but suffered a two inch scalp wound. They reached the summit (The Punta Margherita) at 8 p.m. and bivouacked there as they did not know the way down the Italian side. They descended to Courmayeur the next day. Peters will be remembered for his attempt of 1934 when, only a few hundred feet from the top with his companion Rudolf Harringer, he was forced to retreat because of storm and Harringer was killed on the descent. Two other parties climbed this north face by the same route two days later in complete ignorance of the successful German climb. The Italians, Renato Chabod and G. Gervasutti and two Genevese, M. Lambert and Mlle Boulas made this climb on July 1-2, so that this *impossible* wall has now been climbed three times."

♠

North Face of the Matterhorn. This climb was repeated twice this past summer, a season favorable to its execution, the rocks being consolidated by much snow and ice. On July 16th and 18th, Josef Schmidbauer and Ludwig Leiss made the climb, spending two nights on the wall. Their total climbing time was 46 hours.

This was the second ascent. On July the 24th, Dr. Arthur Bauer with the guide Hermann Steuri of Grindlewald, repeated the climb, leaving the Hörnli hut at 0.45 a.m. and arriving on the Italian summit at 1.45 p.m. or 13 hours elapsed time. The difference in time speaks for itself as the second party found the mountain in poorer condition than the two Germans. There is still something to be said in favor of *good* guides.

♠

Täschhorn; South Face. This wall was climbed for the second time on June 28th, 1935 by Alexander Taugwalder and Karl Biner. Starting from the Täschalp in a drizzle, the foot of the face was reached at 7 a.m. They started up the left bank of the great couloir and then shortly traversed right keeping to the right of the Lochmatter, 1906 route. The difficulties were mainly loose rock covered with fresh snow. They intended to cut out to the Mischabelgrat but finally determined to finish the climb and so moved left to the famous "corner" or "chimney." This was encased in ice and unclimbable, but the overhang was surmounted by a court-echelle and some extremely difficult climbing. Above this the only difficulty was an exposed slab. The summit was reached at 3.00 p.m. or 8 hours from the foot of the climb. Taugwalder considers that if a time free from stonefall were chosen, and with no fresh snow, this climb would be safe.

♠

Mountaineering Dogs. In canine connotation, the St. Bernard, a small cask suspended from his neck, busily digging a bewildered traveller from the snow, is generally thought of when Alpine dogs are mentioned. Most of us recall childhood stories of "Barry," thrilling enough but mostly untrue. Albert Smith created a sensation in 1853 by exhibiting one of this breed in London at his Mont Blanc performance at Egyptian Hall.

Bourrit, on his second attempt on Mont Blanc by the Aig. du Gôuter (1785), mentions, "Mon fidèle chien se hazardoit sur de petites saillies de glaces et de rochers allant de l'une à l'autre avec la l'égèrete et le sang-froid d'un chamois." (*Itinéraire de Genève,* 1808.)

The well-known guide, Sylvain Couttet, keeper of the Grands Mulets hut during the period 1866-80, was often accompanied by his dog, more than once reached the summit of Mont Blanc.

In an appealing essay in *Alpine Studies,* W. A. B. Coolidge commemorates his dog "Tschingel," who accomplished thirty-six peaks and thirty passes. When the present editor called on Coolidge at Grindelwald in 1925, Tschingel's collar, with little bangles on which were engraved the names of the ascents, still hung in a place of honor.

When the German climber, Alfred von Radio-Radiis visited the Brenta Group in 1901, he noticed a dead dog on the slopes of Cima Tosa. A few days earlier it had been killed by a fall in the great chimney. It belonged to a guide, and had ascended the mountain innumerable times. (*D. Ö. A. V. Jahrbuch,* 1909.)

♣

Caucausus

There was considerable activity in the Caucausus this past summer, some four expeditions being in the field, two Austrian, one German, and a Polish group.

Expedition of the Austrian Alpine Club. This was the largest of the four groups and besides Prof. Rudolf Schwarzgruber, the leader, was composed of Dr. Ludwig Obersteiner, Dr. Bernhard Bauer, Rudolf Fraisl, Ferdinand Krobath, Walter Marin, Ferdinand Peringer, Hubert Peterka, Erwin Schlager, Leo Spannrast and Dr. Hans Thaler. Obersteiner and Bauer were delayed in leaving and did not arrive until a month after the others. The main party split into two groups at Naltshik. Krobath, Fraissl, Peterka, Schlager and Spannrast with the interpreter, Kola Kroton, departed for the Dykh-su Group, while Schwarzgruber, Marin, Peringer and Thaler headed up the Bezingi Valley.

On July 14th Krobath, Schlager and Spannrast effected the first traverse of the south ridge of Sugantau (14,600 ft). The following day, Fraisl and Peterka made the second ascent of Ailama, which had not been climbed since the first ascent in 1889. The next day the same group with Schwarzgruber reached the summit of Gestola by way of the Katuin buttress, after a bivouac in a snow cave on the buttress, and traversed this to Lyaler, descending its N. E. flank back to the Bezingi Glacier. On July 16th, Krobath, Schlager and Spannrast made the first ascent of Suganbash (14,420 ft.) by the ice gully between Doppakhtau and Suganbash and its connecting ridge. On the 19th Fraisl and Peterka effected the first ascent of Zurungal which was ascended from the col between it and Ailama. On the 21st this entire group ascended the east ridge of Shkara. From the 21st to the 23rd the group under Schwarzgruber worked out a route up the north wall of Janga. After two bivouacs on the wall they reached the summit on the 23rd only to find that the route of Cockin, which they had chosen for the descent, was threatened by ice fall so that they were forced to bivouac again and finally reached the glacier over Merzbacher's old route. On the 31st Schwarzgruber, Marin and Peringer gave up the ascent of Dykhtau because of the icy wind and lack of bivouac material. On the same day Peterka and Schlager climbed a point (12,840 ft.) on the east side of the Nakhashbita Glacier which they christened Psegansubash (Freshfield-Sugansu-bash). The next day accompanied by Fraisl they ascended the Punta degli Italiani by a new route on the north ridge. On August 3rd Fraisl and

Schlager made the first ascent of both the north and south summits of Tuyalatau. During this time Krobath and Spannrast had been busy climbing Koshtantau by a new route up the S. W. face, and descending the south ridge, bivouacking once on the ascent and once on the descent, the summit being reached on August 1st. After a reunion in Naltshik, the party split up once more. Marin, Schlager and Thaler climbed Elbruz; Peringer with a Viennese mountaineer resident in Russia traversed Bshedykhtau, ascending the north ridge from the Kashcha Glacier, bivouacking near the summit and descending the southwest ridge; Krobath and Peterka attempted the traverse of Shchelditau but were beaten back by storm; Spannrast and Schwarzgruber effected on August 18th the second descent of the southwest ridge of Dykhtau; while Fraisl skied to the summit of Elbruz, descending from the top to hut 11, in 25 minutes.

Bauer and Oberstein who were delayed a month finally arrived and spent from July 27th to August 14th in the Chevsurian Caucausus and around Kasbek. On July 29th they made the first ascent of the middle peak of Shantau, and on August 1st they attained the highest peak of Shantau (14,660 ft.), a first ascent by way of the west face and north ridge. August 3rd-5th they climbed Kasbek and returned to Ordshonikidse (Vladikavkaz). On August 11th they made the first ascent of Sacharis Magali (12,910 ft.) from the Sacharis-gele Pass and the north ridge. The next day they traversed the turreted south ridge of Kidenais Magali to the southern summit of this mountain (13,970 ft.) a first ascent. On the 16th they ascended the west ridge of Selis-mta (12,700 ft.) and found the remains of a cairn on the summit. Before returning they made the ascent of Elbruz.

*

The Expedition of the Sektion München of the D. Ö. A. V. The group composed of Adolf Göttner, Gottlieb Rosenschon, Ludwig Schmaderer and Ludwig Vörg set out at the same time as the Austrian expedition just mentioned, but confined their activities to the Tepli and Adai Khokh groups. On July 7th they ascended the most northerly peak of the range as a reconnaissance. On July 14th they effected the first ascent of Kolotatau by way of the west face, and thence traversed to Teplitau the summit of the range hitherto unclimbed, by way of its east peak climbed in 1886 by Vittorio Sella and E. Gallo from the south. On the 15th they reascended Kolotatau by a new route from the east, and while Göttner and Vörg descended with the bivouac material the others spent the night shortly below the summit and the next day traversed to Arkhontau making the first ascent of this mountain as well. After this success the base camp was moved to the Adai Khokh group on the other side of the Ossetian military road, and on July 19th Göttner and Vörg made the second ascent of Tur Khokh by a new route from the south, and then traversed to Ullurarg Khokh,

making its second ascent. On the 2nd of August Göttner and Rosenschon ascended the Col between the Ifilisis-mta and Double Peak from the Zea Glacier, and climbed both Tfilisis-mta, probable first ascent, and the south summit of Double Peak, and then to the higher north summit, in probability also a first ascent. During this time the other two succeeded in making the second ascent of the high summit of Songuta Khokh and the probable first ascent of the lower north summit. The entire party, then on July 24th effected the first ascent of Uilpata, the highest peak of the group.

During an ascent of Elbruz Rosenschon was taken ill and sent to the military hospital of Terskol where he quickly recovered. The other three with a Russian climber, Georgi Charlamhiev, set out, however, for an attempt on Ushba, and spent from the 10th to the 13th traversing Ushba from south to north, the second time the mountain has been traversed, and in the reverse direction from the original traverse by Pfannl in 1903. This is one of the outstanding climbs in the Caucausus for many years. Following this success Schmaderer and Rosenschon returned home while the other two joined the Austrian scientific expedition in the Benzingi group for a few more days climbing.

♠

The Austrian Scientific Expedition. This group under the leadership of Prof. Hermann Mark, and comprising Peter and Josef Schintlmeister and Eugen Baroni went out primarily to make observations on the "heavy water" content of the glacial regions of the Caucausus. Such observations had already been made on the Aletsch Glacier and at the Jungfraujoch, but it was desirable to confirm them in the heavily glaciated regions around Elbruz and in the Bezingi Valley. In the course of these investigations both summits of Elbruz were climbed and also three rock peaks southeast of Elbruz, one of which did not appear to have been climbed before. In Krugasor they were joined by Göttner and Vörg of the Munich party, and together journeyed to Misses Kosh in the Bezingi Valley. From here these two with the brothers Schmitlmeister made the ascent of Dykhtau by a new route over the northwest ridge. Descending by the north ridge the party met the Russian mountaineer Semenovsky who reached the summit the same day; while the previous day during the ascent the Polish party had been on the summit. An attempt on Koshtantau was given up because of approaching storm, and operations moved to the eastern Caucausus where Kasbek was climbed.

♠

Polish Caucausus Expedition. This party composed of Prof. Marjan Sokolowsky, Jacob Bujak, Stefan and Tadeus Bernadzikiewicz, Roman Wojsznis, Boleslaw Chwascinsky, Victor Ostrowski and Tadeusz Wisniewski effected a number of climbs, among

them the first ascent of Sauz-Kaya, a new route on Burdjula by the east ridge, second ascent of Sandur Khokh; ascent of Bashcha-auz-Bashi; Dykhtau; Skkara; and Semenovski Peak.

A French expedition in the Caucausus was unsuccessful in accomplishing any big climbs in the central chain owing to the extremely bad weather of the first three weeks of July. Two members, P. Dalmais and R. Gaché, who stayed longer than the rest, succeeded in ascending Kasbek on August 2nd.

Himalaya

A sign that the Himalayas are becoming a climbing group adaptable to small parties was the fine attempt on Peak K 36 in the Saltoro Range of the Karakorum. A party consisting of James Waller, Dr. J. S. Carslaw, Rowland Brotherhood and John Hunt with two Darjeeling porters, Palden and Dawa Thondup, reached a height of over 24,500 ft. and were only defeated by weather. In spite of the fact that the mountain was not well mapped and the approaches unknown, this party, by dividing into three groups for a reconnaissance, discovered a new glacier (the Likah) leading them directly to a position under the S. E. ridge, whence a feasible route of ascent up the east face was found. A series of camps was laid up to 22,000 ft. and the final effort made from that point, a mistake which was not realized until too late. It was planned to have the climbing party do much of the carrying but, owing to the poor quality of the local porters it was necessary for them do more of it than was expected. The final assault, hindered by the growing exhaustion of the climbers, was repulsed by storm. It was a gallant attempt and came close to success. If we are to see much mountaineering in the Himalaya it is to this type of climbing that we must look, for not everyone is endowed with the means for financing large expeditions.

Another Himalayan attempt made by a small party was that of Capt. R. J. Lawder and Lieut. D. B. N. Hunt on Istor-o-nal (24,271 ft.) in the Hindu Kush. Here again bad weather and exhaustion forced the retreat of the party when within 200 ft. of the summit.

Everest 1935-36

Permission for a renewed attempt on the world's highest mountain was granted last year but came too late to put a group in the field in time for a spring attempt before the monsoon. It was felt, however, that in order to leave the way open for an attempt in 1936 some activity should be started right away. For this reason a small group, under the leadership of E. E. Shipton, was despatched to Tibet to make a reconnaissance, study the weather conditions in

the fall climbing season, and spend the winter in Tibet in order to be ready for an early start this spring. This party had remarkable success in climbing some twenty peaks over 20,000 ft., of which the highest was Kartaphu, 23,640 ft., and second highest Pumori 23,190 ft. They also discovered the body of Capt. Maurice Wilson, lost on a solo attempt to climb the mountain in 1934, at 23,000 feet, about 300 feet below Camp III, and with it his diary and camera. The 1935 party did not, however, spend the winter in Tibet as planned, but the new group composed of Hugh Ruttledge, leader; E. E. Shipton, F. S. Smythe, P. Wyn Harris, E. G. Kempton, E. H. Wigram, P. R. Oliver, J. M. Gavin, G. N. Humphreys, C. Warren, C. J. Morris, and W. R. Smith-Windham, left England in February for a new attempt.

♣

French Himalaya Expedition, 1936. This expedition sponsored and financed by the Club Alpin Français, and composed of Henri de Ségogne, leader; Pierre Allain, Dr. Jean Arland, Jean Carle, Jean Charignon, Armand Charlet, Paul Gayet-Tancrède (Samivel), Marcel Ichac, Jean Leminger and Louis Neltner is leaving early in March. This group will operate in the Karakorum Himalaya, but no more definite objective has been announced.

♣

German Expedition, 1936. A new attempt on Nanga Parbat will be made this year led by Karl Wien, and backed by Fritz Bechtold, Assistant Leader of the last Nanga Parbat expedition, and Paul Bauer, leader of the two Bavarian attempts on Kangchenjunga.

♣

Visser Expedition to the Karakorum. Dr. Philip C. Visser accompanied by his wife; Dr. Rudolf Wyss, geologist; Herr Peter, zoologist; Afrar Zue Khan Sahib and Mohammed Akram, cartographers, is leaving Srinagar the middle of April for another expedition in the same region as his last along the Ladak—Chinese Turkestan frontier.

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Material for publication should reach the Editor not later than February 1.